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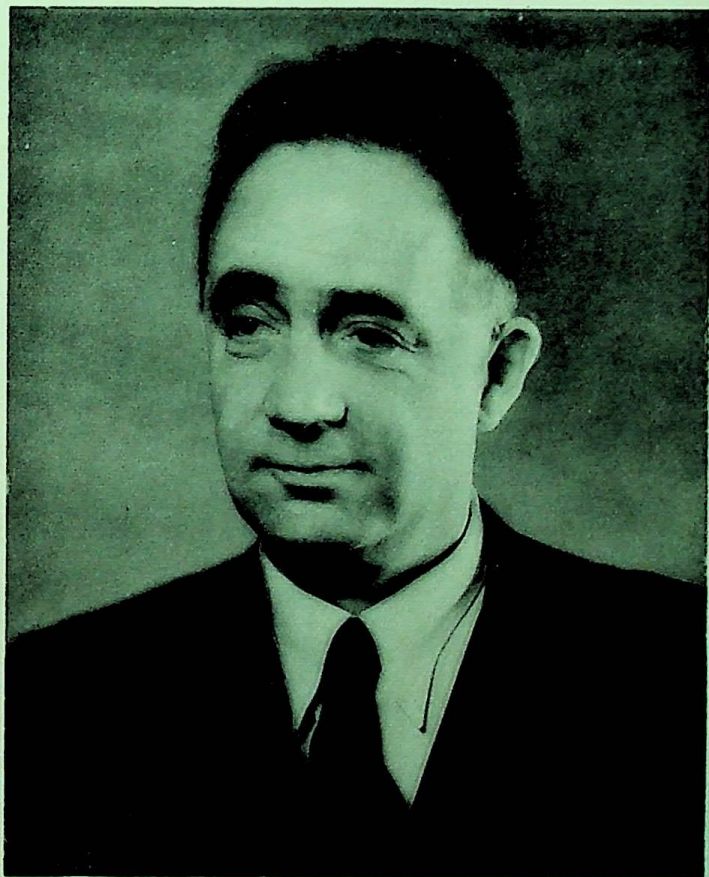
H. Zimmer

HINDU MEDICINE

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Edited with a Foreword and Preface by
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THE HIDEYO NOGUCHI LECTURESHIP

In 1929 the late Dr. Emanuel Libman of New York gave $10,000 to The Johns Hopkins University for the establishment of a lectureship in the History of Medicine. In accordance with Dr. Libman's wishes it was named The Hideyo Noguchi Lectureship to pay tribute to the memory of the distinguished Japanese scientist.

The present volume owes its origin to the seventh course of lectures on this foundation which were delivered on November 25, 27, and 29, 1940, at the Johns Hopkins Institute of the History of Medicine by the late Professor Zimmer.

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EDITOR'S FOREWORD

Henry R. Zimmer delivered the seventh course of the Hideyo Noguchi Lectureship in November 1940. When he died on March 20, 1943, after an illness of a few days, the first lecture and the greater part of the second had been revised and had been in my hands for some time. Among the manuscripts which he left, however, the continuation of the second chapter was not found. There were only nineteen more pages that contain the revised beginning of the third and last lecture of the series, thirty-three pages, corrected but not retyped, that describe certain diseases and cures, and finally two appendices that comprise the translation of the tables of contents of Suśruta-Saṁhitā and of the Encyclopedia of Elephant Medicine.[1]

When I first discussed with Mrs. Zimmer and Dr. Sigerist what should be done with the manuscript, it was decided to make an attempt to piece the book together from the material just referred to, from Zimmer's notes extant in fair number,

[1] Mrs. Zimmer and Professor E. Frank together with Dr. H. Steiner sorted the manuscripts left. By courtesy of Mrs. Zimmer the medical material has been deposited in the Welch Medical Library, where it may be consulted by scholars interested in Hindu medicine.

and from the manuscript of the papers as they were read. Yet it turned out that the notes did not cover more than brief sketches of problems to be dealt with. Moreover, Zimmer had not only enlarged on the content of the lectures of 1940; he had also decided to reorganize his material. No outline of the new arrangement was preserved. It would appear from one of his letters that at the end of the second chapter he planned to speak about the relation between Hindu medicine and Greek medicine.[2] Otherwise it remains unclear how he intended to proceed; whether sections taken out of the first two chapters were to be integrated into the later context, and if so, where they were to be inserted; how the missing parts of the second and third chapters were to be composed. Every attempt to bring out the book as its author had envisaged it had therefore to be abandoned.

We then considered other possibilities. The thought that somebody else should try to complete the manuscript was almost immediately discarded. No scholar, however competent, would have been

[2] This letter accompanied the first chapter, sent to me in the spring of 1942, if I remember correctly (Zimmer rarely dated his letters).

able to continue the work in Zimmer's style and manner, so distinctly individual in the treatment of Hindu medicine, as in everything else he ever wrote. For a long time we pondered over the feasibility of adding from Zimmer's original manuscript and from his other writings a collection of miscellaneous statements concerning medical theory and practice. But these casual remarks were difficult to group and did not form a unity. Taken by themselves they did not convey a clear picture of his insight into those aspects of Hindu medicine which are not covered in his last writing. Moreover, the impressiveness of the finished lectures seemed to be diminished rather than enhanced by such a medley of disjointed aphorisms.

At last it was agreed to print the first two lectures as they stood. For fragmentary as they are, they are, all of us felt, of no small importance. They contain numerous translations that reflect Zimmer's thorough understanding of the content and language of Sanskrit literature. They strive to explore a hitherto neglected perspective of the interpretation of Hindu medical texts. When Zimmer sent me the first chapter, he wrote: "The strictly positivistic and descriptive analysis of Jolly is not

yet antiquated; it is such an incredibly decent and clean piece of work that you get discouraged whenever you try to deal anew with the details and to concentrate on them. But I believe nobody has ever tried to represent the atmosphere as such and what it means for a more correct understanding of the details."[3] Such a representation was what he aimed at. And although, as he wrote me in 1942, he was aware of shortcomings in his own work, he was convinced that in the main he had succeeded. Indeed the peculiar flair of Hindu medicine, its largely mythical and allegorical ingredients, are here grasped and made explicit by one who was particularly gifted for bringing to life the implications of myth and allegory.[4]

In the fragmentary interpretation which we are submitting to the reader, however, the general

[3] The passage is taken from the letter quoted in note 2.

[4] Zimmer probably would have made a number of corrections in the wording and order of his final text. The manscript is somewhat uneven. Repetitions occur, and in certain instances one gains the impression that the author was still groping for the most adequate formulation of his thoughts. I felt entitled to change expressions or the structure of sentences only where in my opinion this was indispensable for bringing out clearly the implied meaning. Otherwise, I have restricted myself to correcting mistakes that were obviously overlooked in the manuscript. I did not venture to tamper with Zimmer's individual style.

picture of Hinduism, as the author presupposes it, is perhaps not sufficiently clear. It seemed advisable, therefore, to outline in some detail Zimmer's concept of Hindu culture, the view of Indian life into which he fitted his analysis of Hindu medicine. Besides, it seemed a worthwhile undertaking to summarize those findings which Zimmer made in the course of his earlier studies, yet was prevented from integrating into the book that should have displayed all his knowledge concerning medicine. Lastly, it seemed a defensible act of piety to try to save whatever possible of the scattered notes and outlines for the missing chapters. The preface, which I have ventured to write with the consent of Mrs. Zimmer and Dr. Sigerist, is meant to supply these wants. My only qualifications for such a task are my long-lasting friendship with Zimmer and an amateur acquaintance with his work, based on our personal relationship and on my sincere respect for his accomplishment. Since it is the sole purpose of this sketch to give an account of Zimmer's work without any endeavor at evaluation, my lack of critical judgment is perhaps less a disadvantage than it would be ordinarily. That I have introduced my report by a few remarks on Zimmer's personality, the reader will,

I trust, pardon. The better we know the spirit and character of a writer, the more easily can we explain his utterances, says Spinoza, whose works Zimmer once gave to me as a present from his library. This statement, whether or not it is true in general, certainly holds true of him who endeavored to find his way back to the mysteries of India.

Finally, I should like to say that Alda Oertly corrected and polished Zimmer's English when he was preparing his manuscript. He was the more conscious of the difficulties of writing in a foreign language since in his native tongue his thought and his style were perfectly matched. Once Mrs. Oertly had started working with him, he felt at ease, and he told me repeatedly how grateful he was to her for her understanding devotion to the task which she had agreed to undertake. It is in his stead that I now wish to thank her, and I add my own thanks for her assistance. I am also indebted to Professor Paul E. Dumont for his generous cooperation. He kindly went over the galleys and made sure that no errors had crept into the Sanskrit terminology.

LUDWIG EDELSTEIN

Baltimore, Md.
April, 1947

EDITOR'S PREFACE

I

I happened to make Zimmer's acquaintance in the early summer of 1924, an especially happy and important phase of his life: he was just beginning to come into his own. His earlier biography can be briefly told. Born in Greifswald in 1890, he attended school there and in Berlin; from 1909 until 1913 he studied at the University of Berlin. After having taken his degree in 1913, he underwent his one-year military training and stayed on in the army throughout the first World War. Discharged in December 1918, he resumed his work and became Privatdozent in Greifswald in 1920. In 1922 he moved to Heidelberg. Here at last he was able to carry out the decision which he had made on his return from the war—" free as a guest from the other world "—namely, to abandon completely the traditional pattern of interpretation that he had followed, however reluctantly, in his youth and to give expression to his own vision of India. In 1924 his first book was in print and he was working

on the second.[1] At the university he lectured on Hindu religion.

It was in this lecture course that I saw Zimmer for the first time, and I shall never forget the impression which he then made upon me. A tall man, rather heavily built, his broad shoulders somewhat uneven, he stood before the few students in his characteristic attitude: his body erect, his massive head slightly tilted to the left. His face, —very unusual in its contour, its features stern rather than gentle,—showed no emotion. His eyes, deep-set under thick brows, were fixed upon his manuscript—he was reading the story of Dharma-rutschi which tells of the cycle of incarnations, of the path followed by the Enlightened One and of that followed by the uninitiated. Only occasionally did Zimmer glance at us. If he saw us at all, if he paid any attention to our presence, it was in order to make sure that we were following him into that realm into which he himself was transposed. For his outward calm was apparently that of the body

[1] *Karman, Ein buddhistischer Legendenkranz*, 1925; *Kunstform und Yoga im indischen Kultbild*, 1926. For a more detailed account of Zimmer's life, cf. his *Biographical Remarks* in *Two Papers by Henry R. Zimmer*, 1944 (Van Vechten Press, Metuchen).

which stays here while the spirit is far away. His voice, somewhat harsh and unmelodious, did not change much, nor did the rhythm and the tempo of his speech vary. Every word resounded the monotony and simplicity inherent in sacred prose. And behind the facts retold there was the reality of the world that lies beyond.

Having been introduced to Zimmer by a mutual friend after one of the lectures, I welcomed every opportunity to talk to him. Such discussions often started in one of the narrow streets of Heidelberg or on the beautiful old bridge crossing the Neckar. He would come along walking swiftly, in very unconventional clothes—unconventional, that is, for a German professor: slacks, sport shirt with open collar, no tie, no jacket—carrying under one arm a number of books, under the other the food he had bought to prepare his meals. "I just found," or "I just read,"—thus the conversation would begin, and often it would not end until an hour, or hours, had passed, whether we remained standing where we were or walked on to his house, far out in the Neckar valley, and there sat down in his small study, a modest room, furnished with a few books and a relief of the Buddha of Gandhara.

In discourse Zimmer excelled; here all the facets of his rich nature shone forth brightly. He always spoke about essential things, or rather whatever he touched upon became essential. Although he abounded in witticisms and sarcasms, although he was a brilliant raconteur, sparkling and overflowing with ideas, he was fundamentally serious, even grave. To him nothing was trifling, everything was part of the whole. Talking rapidly, as if possessed by his subject, as if driven on by a demon, he delighted in joining the nearest up with the farthest, in pointing out historical parallels, in establishing crossline combinations. The characterization which a great Sanskrit scholar once applied to Hindu philosophers—a characterization that Zimmer found most appropriate—might be applied to him also, perhaps with a slightly different meaning: he philosophized "in die Quere," latitudinally, as it were.[2] And he did so with a breadth of knowledge that was astounding. German, French, English poetry and prose, classical literature, art of the various periods, the story of man's highest endeavors and of his most ridiculous foibles—all

[2] Cf. *Ewiges Indien, Leitmotive indischen Daseins*, 1930, pp. 111; 170 f. (note 42).

this was ever-present to his mind which was associative rather than deductive and penetrated into the very core of things by intuiting rather than by computing them.

This indeed was Zimmer's greatest gift: that he was able to divine the truth with his inner eye, a faculty that, in his opinion, was no merit, nor even an advantage. On the contrary, much as he hated shallow dialectics, he had an almost childlike admiration for those who were good at reasoning, at presenting conclusions from a well ordered argument. "Ich kann nicht denken," I am incapable of thinking, he used to say with sincere regret. But visionary as was his approach to any topic, it was at the same time distinct, sharp, and clear-cut. Moreover, his thought tended to become concrete, to take on flesh and blood. One day we walked along the Neckar, while he was trying to explain to me the Hindu attitude toward death. "To die —that means to cross *this* river in a boat and then to look back from over there to the eddy here." He would not use the old simile *in abstracto;* it was infused into the reality of the surrounding world. The water we saw became the dividing line

between the two realms of existence.[3] Even his retelling of stories, fired as it was by fantasy, the fantasy of the poet, reflected a fantastic realism, as Dostoevski called the fantasy of Poe, a writer of whom Zimmer was very fond.

Endowed with such a personality, Zimmer could not fail to impress people. In whatever circles he moved, he assumed a dominating rôle. Everybody was likely to share the experience of the Oxford classicist, C. M. Bowra, who met Zimmer in 1938: even if ordinarily he felt some reluctance in applying the word " genius " to any man of learning, in Zimmer's case he felt it was the only word that was appropriate.[4] It was to Zimmer's credit—and it constituted part of his charm—that he remained an unspoiled genius. Sure as he was of himself, he was not conceited. He was aware of the dangers inherent in his make-up, of his inclination to go to extremes. His gratitude toward those who reminded him of his better self was unbounded. Genuine praise of others, the recognition of their

[3] Compare *Ewiges Indien*, pp. 131 ff.

[4] *The Review of Religion*, 1943, p. 18. Incidentally, in this journal (pp. 14-19) the reader will find short memorials by David Friedman, Ananda K. Coomaraswamy, and Herbert Steiner.

achievements as compared with his own, were a matter of course with him. Although he could be very harsh in his judgment of people, in condemning what he loathed, he was always willing and eager to acknowledge merit. At heart he was kind, and behind a certain outward roughness which could sometimes be dismaying there was a great sensitiveness and delicacy of feeling.

For four years I had the good fortune of living in the same town with Zimmer, and of staying at the same university. After that time—between 1928 and 1933—I saw him but rarely, on his occasional trips to Berlin or whenever I returned to Heidelberg for a visit. At such meetings everything was as it had been before; he was a faithful friend; whether one saw him regularly or not, his attachment to one did not change. His work in these years grew steadily. More settled and a trifle less unconventional since he had married—we used to say jokingly that he was now a tamed bear, but a bear nevertheless—he published book after book, article after article. His insight into Hindu art, philosophy, religion, poetry, deepened. The secret of India was captured in a language quite his own, and through his interpretation a past and a present

that are so foreign to the Western mind began to be understandable to experts and laymen alike. As a lecturer, too, he became more and more popular. It was astonishing to see how large crowds, men and women of all walks of life, would listen to him, spellbound and enchanted, as were his students.

Besides, Zimmer gradually transcended the boundaries of Sanskrit scholarship. After the death of Hugo von Hofmannsthal, the father of his wife, he became the co-editor of the legacy of the great poet. This undertaking he tackled not only with his usual zeal and unselfishness, but also with the enthusiasm of the connoisseur of literature. In 1932 he became acquainted with C. G. Jung and forthwith was drawn into the magic circle of the Jung movement. His own studies had made him aware of the psychological implications of mythology. The psychologist's research was a welcome confirmation and clarification of the results of the Sanskritist. An exchange of ideas ensued, a give and take by which both profited.[5] Some of Zimmer's friends—and I was one of them—regretted these diversions of his activity, valuable as they

[5] For Zimmer's relation to Jung, cf. *Two Papers*, pp. 21 f. Jung himself speaks about his friendship with Zimmer in the introduction to Zimmer's book *Shrī Ramana* (1944).

were in themselves. We wished that he would devote himself entirely to his own field in which he could make a unique contribution. But Zimmer's overflowing energy, his expansiveness, could not contain themselves within the narrow limits of a specialty or of academic life. Not only did he think "latitudinally"; he also had to live in this way.

After I left Germany in 1933, I heard from Zimmer at regular intervals. Although he was oppressed by the feeling that the world was closing in on him, and although he was irreconcilably opposed to the current political development, he continued to stay in Heidelberg. It was his sense of duty that made him remain at his post as long as humanly possible, and that also enabled him to go on with his research. Reprints and books came which showed that he was still the same. In 1938 he decided at last to leave Germany. After one year's residence in England, he came to this country and, shortly after his arrival, to Baltimore to deliver the Noguchi Lectures. When I saw him again, I found that he had grown much older than time warranted. The strain of his recent experiences was quite noticeable. He was both tired and

restless. But he was also happy to be free again and he looked forward with confidence to the experiment of fitting himself into a new life. One day he came to my house and we talked in peace and quiet, from early morning until afternoon. He spoke of Heidelberg under the Nazi regime: even the beauty of the landscape had lost its charm and glamor through the impact of the deeds of men. He told me about his children with whom he was reading the sagas of classical antiquity and some of the works of Sophocles. He commented on English literature of which he had an even more intimate grasp now that he was living in the Anglo-Saxon world. He dwelt on his latest interests: the symbolism of the figures depicted on playing-cards and that of the chessmen. To him, the king on the chess board—this monarch who is so entirely dependent on his subordinates for his defense and rarely capable of taking a piece by himself—was the exact copy of the Hindu king who in spite of all his might is more endangered than all his subjects and must always work through his courtiers.[6] Listening to all this and much more

[6] *Indische Sphären*, 1935, p. 43 (*Schriften der Corona*, XII); cf. also *The Polish Bulletin of Oriental Studies*, I, 1937, pp. 90 ff.

than I can recount here, I forgot how many years had passed, how many changes had taken place; I only felt the old fascination of his personality, the importance of the spiritual quest to which Zimmer was devoted.

Our meeting in 1940 was to be our last. From time to time letters came, discussing the revision of the lectures, talking about New York. As I learned also from others, Zimmer adjusted himself quickly, despite the many odds he had to overcome. At first he lectured before various private groups, but finally he found a position at Columbia University. Of his reaction to the new surroundings I need not write; he has himself described them in a short paper.[7] He was impressed by the cheerfulness of America, the teeming life of towns and factories, but also by an element of monotony in the form of human existence here as compared to Europe. He was overwhelmed by the vastness of this continent, by the emptiness and desolation of its deserts. The grandeur of its nature appeared to him imbued with the divine indifference of the Hindu gods and the unearthly radiance of compas-

[7] *Address to the Analytical Psychology Club of the City of New York* in *Two Papers*, pp. 23 ff.

sionate Buddhist saviors. In this, he saw one of the fundamental ingredients of the inexhaustible strength of American civilization. The epic of geology—the precipices of the Grand Canyon, their union of opposites—revealed to him the essential enigma of reality: the paradoxical harmony of antagonistic principles forming one whole.

It seemed that in the new world he would find the strength to make a new contribution; a future full of promise seemed to lie ahead of him. When I heard that he had suddenly died, I felt, as all his friends will have felt: it could not be true; he could not be dead. For he was fullness of life itself, unable to rest, destined to carry on forever. Surely for him death can be but a twinkle of eternity.

II

Zimmer's interpretation of Hindu culture had two aims: to understand its meaning in its own terms, and to ascertain its value for men of today.

This attitude, historical and non-historical at the same time, was innate in him. When in his fifth term he turned away from Western studies and chose Sanskrit as his main subject—he had first studied

German philology and taken Sanskrit only as the usual auxiliary language—he was instigated also by the conviction that in his new field the major victories were still to be won, while in the one relinquished the decisive research had already been done. But above all he was attracted by India herself, yet unknown, perhaps unknowable; he was in quest of the India of Schopenhauer.[1] The routine of editing texts, or of establishing the meaning of every single word did not satisfy Zimmer. He did not only ask, what do they say; he added a profession of faith: "This is what they state and mean—and it is true. It is the truth, though I do not understand it as yet, and feel not any too confident that I shall ever grasp its point."[2] Or as he formulated it at the height of his life: "The time has passed when one could hope to grasp the scope of the message of the Hindu spirit by way of a merely historical analysis and a philologically correct interpretation of words, when one could hope to penetrate into the essence of the manifestations of Hindu life through

[1] *Two Papers*, pp. 8 ff.; 20; and *Schopenhauer und Indien* in *Corona*, VIII, 1937, Heft 1.

[2] *Two Papers*, p. 8.

a study in the comparative psychology of its conditions." And he was willing to recognize that India could provide us with a "direction for our own ordering search, our own groping divination, where our knowledge has to admit its failure." [3]

Taking such a stand, Zimmer at first felt rather isolated and was conscious of his being different from his fellow students and from his teachers, among them the eminent Sanskritist, H. Lüders. For Sanskrit studies were then in their positivistic phase; the validity of the content of Hindu teaching was hardly debated. Later he came to realize that at least in his basic approach he was not as lonely as he had thought. Arthur Avalon and J. J. M. de Groot were on his side. These names were given as examples in his *Autobiographical Remarks* which he jotted down shortly before he died.[4] Of the older generation, men like P. Deussen and K. E. Neumann could probably be added; among his contemporaries there was J. H. Woods, and there was A. W. Ryder, for whom the Sankhya came "nearer to the truth than any philosophy Western or Eastern." [5]

[3] *Ewiges Indien*, pp. 43 f. [4] *Two Papers*, p. 17.
[5] H. Cherniss, *Arthur W. Ryder*, p. 9 (privately printed). David

At any rate, one thing is certain, that Zimmer gave an original answer to those questions in which he was primarily interested. He defined anew the meaning of the various segments of Hindu culture as well as their eternal value. Of this re-interpretation which forms the background of his analysis of Hindu medicine, I shall try to give a short outline.

Zimmer's first book *Karman* clearly reveals in which direction he was seeking his goal.[6] The novels here translated—products typical of the tradition current among Buddhist monks—are understood as didactic prose in the strict sense of the term. Addressed to those whose horizon is narrow, whose intellectual ability is limited, they illustrate and rationalize in simple narrative the Hindu concept of fate and freedom—a " vegetative " concept as compared to that of the West. They are not the outgrowth of the principle of art for art's

Friedman (*The Review of Religion*, 1943, p. 15) compares Zimmer with Otto Strauss and Stanislas Schayer, and he points out that this group took up and carried on the research initiated by the German Romanticists of the early 19th century.

[6] Zimmer's doctoral dissertation (*Studien zur Geschichte der Gotras*, Berlin, 1914) in his own opinion showed little of the approach characteristic of his later work; cf. *Two Papers*, p. 9.

sake; they are a means by which to impart and clarify an attitude of life.[7] From India, where it originated, this type of psychagogic narrative was brought to other countries, as Zimmer added later on. It has become world-famous through the stories of *The Thousand and One Nights*, told as a charm that was to cure a blood-thirsty tyrant's soul of the passions which haunted it.[8]

It is, then, the functional importance of the creations of the spirit that is here re-discovered. In his later research, Zimmer applied this concept to other fields and brought it to full fruition. Hindu fine arts, like Hindu literature, must not be judged by aesthetic standards alone. The temples and their statues reflect religious experience and teachings. Nirvana or emptiness finds its material expression in the image of Buddha. The representation of Śiva and Śakti as lovers symbolizes the antagonistic principles of the Absolute, a co-operative pair of opposites.[9] If it is true of all

[7] *Karman*, pp. 199-205.

[8] *Umrisse indischer Seelen-Führung* in *Reich der Seele* (Arbeiten aus dem Münchener psychologischen Arbeitskreis), 1937, pp. 64 f.

[9] *Kunstform und Yoga*; esp. pp. 7-19: 188-191; *Myths and Symbols in Indian Art and Civilization* (*The Bollingen Series, VI*), 1946, pp. 137 ff. For the Hindu temple and its architectural outline

" static " pictures that they are to be understood in the light of the sacred texts and their doctrines, this is especially characteristic of the " dynamic " representations, that is, of the geometrical cult pictures which are nothing but instruments through which to realize religious contents. " We may say," thus Zimmer summarized his theory in his last lecture course at Columbia University, " that a yantra is an instrument designed to curb the psychic forces by concentrating them on a pattern, and in such a way that this pattern becomes reproduced by the worshiper's visualizing power. It is a machine to stimulate inner visualizations, meditations, and experiences. The given pattern may suggest a static vision of the divinity to be worshiped, the superhuman presence to be realized, or it may develop a series of visualizations growing and unfolding from each other as the links or steps of a process." [10]

Mythology, too, is a means of guiding the soul. To be sure, the myth also reflects the integration of old Hindu traditions into those of the Aryan

that is determined by religious ideas, cf. also *Journal of the Indian Society of Oriental Art*, 1937, pp. 111 ff.

[10] *Myths and Symbols*, pp. 141 f.

immigrants. In this respect, it gives a symbolic representation of the history of India, expressing ancient thought in a new language.[11] But the greatest significance of the myth is this, that it is not merely an irresponsible play of fantasy, but teaches in pictorial script an attitude toward life. As "Nietzsche says: 'It is not true that there is some hidden thought or idea at the bottom of the myth, as some in a period of civilization which has become artifical have put it, but the myth itself is a kind or style of thinking. It imparts an idea of the universe, but it does it in the sequence of events, actions and sufferings.'" That is the reason why for us it is a mirror "telling us what we are and how we should behave."[12] In the same way, it is spiritual guidance that is provided by all the sacraments, or rites, or initiations, or steps, or however one may choose to call the multiple practices and customs that in India take hold of the human being and carry him throughout life.[13]

This, then, is the first result that one has to

[11] *Indische Sphären*, pp. 19 ff.

[12] *The Involuntary Creation*, p. 10 (*Spring* [The Analytical Psychology Club of New York City] 1941).

[13] *Prabuddha Bharata*, 1936, p. 178. Cf. Emil Abegg, *Neue Züricher Zeitung*, March 25, 1943.

bear in mind when in the representation of Hindu medicine one reads of the old saga, of the gods and demons, of initiations, when one reads of religious practices; for the Hindu, these stories are not dead matter, these concepts are not meaningless fictions; they are indicative of a living power that has always shaped and is still shaping his existence. Far from being an adornment, they express the essence of his thought.[14]

But so far I have spoken only of the way in which the documents of Hindu culture ought to be understood. What value does such an understanding have for the Western interpreter? The answer to this question depends on a clearer definition of the specific character of Hindu wisdom, and in this connection mythology assumes central importance. In India, the myth was neither destroyed nor replaced by philosophy; it remained at all times the teacher of man.[15] As the highest embodiment of knowledge it clarifies the paradox of human existence, namely that man transcends

[14] The principles laid down for the interpretation of Hindu art would have to be applied also to the representation of medical deities. The book rarely mentions the relation of medicine to art.

[15] *Indische Sphären*, p. 13.

existence, that he embraces thisworldliness and otherworldliness. In consequence of this truth, the goal of life is not visualized as a moral attitude, although the fulfillment of the supreme task involves moral values. Rather is the goal extinction of self, complete abandonment to life. Like God, unaffected by the course of events, man must live within the world and without it.[16] The myth, in opposition to intellect, leads into spheres that lie beyond personality and intellect; myth is the brother of dreams reflecting the depths of the human soul, it expresses the realm of the collective subconscious. India, to put it differently, even to this day has remained the prototype of archaic wisdom, of the non-intellectual vision of the world.[17]

European culture is based on quite a different dream—the dream of the Greeks—on the Greek hybris which, through the hypothesis that the interrelation of things can be grasped by reason, created a world which reason understands. European life is determined by the Greek discovery that

[16] *Ibid.*, pp. 33; 37 f.; 40.

[17] *Maya, Der indische Mythos*, 1936, pp. 34; 36. The Greek myth is but the creation of individuals and therefore, in Zimmer's opinion, it seems inferior to the Hindu myth and less typical.

man is unlike nature, an "animal endowed with humanity." To one who thinks of the abyss of the soul as it is revealed in the Hindu myth, the European world may seem shallow, just as the laughter of the Greek gods—these eternal symbols of rationalism—is shallow as compared to the ambiguous smile of the Hindu deities.[18] But Zimmer was not romantically longing for the wisdom of the East as the truer or higher form of knowledge. Conscious of the inescapability of the situation in which the European mind finds itself, he did not uphold India as a model. He only wished to understand its truth, and by so doing to contribute to the understanding of our own truth: "The real treasure, to end our misery and trials, is never far away; it is not to be sought in any distant region; it lies buried in the innermost recess of our own home, that is to say, in our own being. . . . But there is the odd and persistent fact that it is only after a faithful journey to a distant region, a foreign country, a strange land, that the meaning of the inner voice that is to guide our quest can be

[18] *Spiel um den Elefanten, Ein Buch von indischer Natur*, 1929, p. 138; *Indische Sphären*, p. 35. For a different point of view, cf. P. Friedländer's spirited answer, *Die Antike*, X, 1934, pp. 209 ff.

revealed to us. And together with this odd and persistent fact there goes another, namely, that the one who reveals to us the meaning of our cryptic inner message, must be a stranger, of another creed and a foreign race."[19]

Both, myth and rational thought that develops later, spring from the unfathomable depths of life. Both have their limitations and prejudices, yet each one gives an interpretation of the world consistent in itself. Contact with the myth of another civilization, and such contact alone, can liberate modern man from his captivity, at least for a few moments of illumination. The myth lays upon him the invisible net of its presuppositions, thus reminding him of the hidden core of his own nature. For only the spear that inflicted the wound is capable of healing it, as Parsifal says; he who wounded will also heal, as even the Greek myth teaches.[20] Or to quote the concluding words of Zimmer's last lecture at Columbia: "Hindu myths and symbols, and other signs of wisdom from afar . . . will speak to us of the treasure which is our own. And we then must dig it up from the forgotten recesses

[19] *Myths and Symbols*, p. 221.
[20] *Maya*, pp. 26; 18 f.

of our own being. And at last it will end for us our troubles and permit us to erect for the benefit of all around us a temple of the living spirit." [21]

This, in rough outlines, was Zimmer's interpretation of the mystery of India and of its message to men who live in the Western world. With such a belief he undertook to analyze Hindu medicine for those who are interested in it from the point of view of the historian and the scientist.

III

Zimmer's research in Hindu medicine extended over many years. According to his autobiography, he first turned to this subject in 1925, immediately after he had finished his book on *Kunstform und Yoga*. At that time, he saw in Paris a " charming minor hunting relief. It showed huntsmen on an elephant, the animal handing them with its trunk the deer they had killed. It gave me a pang; I felt a criticism and remorse for having dealt so exclusively with Hindu and Buddhist devotional yoga and esoteric doctrines. Here I was confronted with a scene of everyday life. I felt the necessity of

[21] *Myths and Symbols*, p. 221.

balancing my interest in transcendental Hindu wisdom by knowledge of the realistic approach to life's experiences in the Indian tradition. Thus I delved into medicine, the best representative of Hindu earthly life and wisdom." [1]

The first fruit of these studies was a book on animal medicine, more specifically, on the treatment of elephants: a translation of the Mātaṅgalīlā of Nilakaṇṭha and of excerpts from the Hastyāyurveda; an introduction and commentary were added.[2] This is not the place to review in detail the results of Zimmer's interpretation. But it is of interest to note certain parallels between Hindu animal medicine and human medicine, and to emphasize some of the findings concerning medicine in general which Zimmer formulated here, yet failed to integrate into the Noguchi lectures.

The animal doctor—who is a specialist and not allowed to treat human beings, just as the human doctor may not treat animals (p. 148)—is chosen on the basis of the same qualifications and initiated into his art in the same way as the healer of

[1] *Two Papers*, pp. 16 f.

[2] *Spiel um den Elefanten* (see above, p. xxxv, n. 18), pp. 91 ff.; 136 ff.

human diseases (pp. 85 f.). In animal medicine, too, the pre-Aryan knowledge which became part of the priestly medicine of the Vedas (pp. 57 f.) is believed to be an insight derived immediately from the gods (p. 81); the physician to a certain extent remains a sorcerer (pp. 139; 142). Again, the self-reliant optimism of science is entirely absent (pp. 141 f.). Experience and tradition (pp. 138; 167 f.), observation and speculative theory (pp. 148; 138) go hand in hand. No attempt is made to establish a system consistent in itself (pp. 139; 141 f.; 172; 179).[3]

A unique feature of the analysis of animal medicine is the discussion of physiognomy (pp. 54 ff.). Such a science is first of all developed for the sake of practical knowledge; it teaches what to expect from those with whom one comes in contact. In animal and human medicine alike, types are established which conform to the " essence " as expressed in each specific incarnation. They are constituted by what might be called a metaphysical theory of inheritance (p. 60), and they are the

[3] Note also the references to the macro-microcosm relationship (p. 147), to diseases in men and animals (p. 164), to places suitable for incision (p. 166).

same in animals and men; for men and animals can be compared, while plants and human beings show no affinity (p. 62). As for the principles of classification, some of them are taken from the political order, since for the Hindu the castes echo natural distinctions of qualities (pp. 63 ff.). Others are derived from physiology. Phlegm, gall, wind, but not blood, are considered to be the constituents; the mixed or balanced type is the highest (pp. 66 ff.).[4] Yet, many systems know only of three species (p. 70), and the phlegmatic type, at any rate, is nearest to the ideal combination of the humors, often it represents the supreme value. That this is so is in agreement with the climate of India and the temperament which derives from it. The same feeling, so utterly at variance with that of the Western world, is expressed in the Hindu ideal of contemplation, of inactivity, as the highest form of life, celebrated in Hindu philosophy and art (pp. 74 ff.).

In those books that followed Zimmer's study of elephant medicine and were dedicated to an ana-

[4] Colors too play a rôle (p. 72). The elephant's place of origin is important (p. 76). The variations in behavior must be considered (p. 78).

lysis of Hindu thought and culture in general, medicine is at least occasionally referred to, and some of its major aspects are emphasized. Thus, the origin of medical knowledge is characterized: "The sages, the wise men, who achieved knowledge comparable to that of our experimental science, in India were called *Kavi*, prophet-poets. It is on their immediate observation of the body, for instance, and of the powers which preserve and heal it, that all mediate and communicable knowledge of later medical tradition was based. Subsequently teaching and application ensued, where formerly prophetic experience of an inexpressible all-in-one of insight and fullness of meaning had prevailed."[5] Zimmer points out that according to Hindu medicine "'it is impossible to fathom the causes of all worlds and of all beings'—why in every detail they are as they are: their hidden law —'this is the secret of the gods . . . and that which cannot be thought out should be left to itself.' This attitude implies that one rests satisfied with the juxtaposition of description and observation, of sifted experience and speculative synthesis."[6] The

[5] *Ewiges Indien*, pp. 118 f.; cf. 81.
[6] *Indische Sphären*, pp. 68 f. As the book on elephant medicine

philosophical concept of fate is introduced into medicine: "The power of our decisions, their determining might [as Karma] is evidenced by the color of our hair, the shape of our nose, the diseases we suffer, the successes we gain, the length of our life, and the maturity of our understanding."[7] Besides, Zimmer analyzes the Yoga technique of respiration in minute detail: he shows how "all the gods within our body" are made subservient to the human will. He elaborates on the parallel between medical teaching and the teaching of the Buddha. While Spinoza speaks *more geometrico*, the Buddha speaks *more medici*, as a practitioner.[8] In his review of the translation of a play, *The Bliss of the Life-monad or Soul*, Zimmer finally clarifies the attitude of the average Hindu toward the medical art. His confidence in medicine is great. Yet the value of medical care is measured by man's higher destination. The sound body is,

had formulated it, the unreconciled combination of opposite features is characteristic of the Hindu picture of the world, and the specific content of the Hindu attitude toward life is infinitely more important for the development of Hindu medicine than any trends inherent in medical thought itself (pp. 178 f.).

[7] *Indische Sphären*, p. 74.

[8] *Op. cit.*, pp. 233 (cf. below, pp. 32 ff.); 237; 106 ff.; 123 ff. [191 f.].

and ought to be, made the instrument of spiritual experience through which one becomes conscious of the indestructibility of one's true self, of that part within man which is behind his individuation.[9]

Almost simultaneously with these studies Zimmer published two articles on psychotherapy.[10] India practises both, medicine of the body and medicine of the soul. But, while the former lies in the hands of the lay physician, the latter is practised by the priest; it is enshrined in the ritual that governs every act of life. Varying according to the various types of men—there is a hierarchy of rituals as there is a hierarchy of castes—, these ceremonies aim at the prevention of the sickness of the soul, they aim at a macrobiotics of the soul, just as lay medicine is concerned with a macrobiotics of the body, " the knowledge of the perfect and long life." [11] Thus, the " Guru," or housepriest, teaches the mother through a ritual, " the giving

[9] *Frankfurter Zeitung*, Jan. 23, 1938 (Literaturblatt); cf. below, pp. 61 ff.

[10] *Indische Anschauungen über Psychotherapie* in *Zentralblatt für Psychotherapie*, VIII, 1935, pp. 147 ff. (translated into English in *Prabuddha Bharata*, 1936, pp. 177 ff.); *Umrisse indischer Seelen-Führung*, quoted above, p. xxx, n. 8.

[11] *Seelen-Führung*, p. 59.

away of the fruit," how to bear the separation from her child once it has grown up. The ritual begins "at about the fifth year of the child's life and ends when the son enters the circle of adult life." It represents "the unrelenting demand made by life and the outer world which can only be satisfied through sacrifices. The woman must, therefore, symbolically sacrifice to him [the Guru] the things that she most cares for, not only once but repeatedly through the years."[12] The limitation of this dietetics of the soul consists in that it does not make allowance for the development of the individual. As a compensation for the strict adherence to the community, enforced by the chain of rituals that fetter the masses, the system of Yoga represents the complete detachment of the few from all human bonds.[13]

It was on account of the research just referred to that Zimmer was invited to give the Hideyo Noguchi Lectures, and it was with all these results already reached that he set out to prepare

[12] *Prabuddha Bharata*, p. 179. In agreement with such an interpretation of the ritual as a kind of religious psychotherapy, the famous or notorious Kāmasutra is to be explained as a dietetics of the psyche in the erotic sphere (*ibid.*).

[13] *Op. cit.*, pp. 187 f.

them. Nevertheless he found the work hard. A *publicum* which he read in the summer of 1937 had made him fully aware of the difficulty of the subject. In connection with our first discussion of the matter, he wrote that it was necessary to unearth all the details; otherwise the picture would remain incorrect. The two great encyclopedias, Caraka and Suśruta, had to be translated chapter by chapter. " An evaluation is a difficult though stimulating problem. The situation seems similar to that of occidental medicine which was carried on in the late ancient fashion until, in the ' Biedermeier,' modern medicine came into existence, based on chemistry and the natural sciences. Yet it would be . . . wrong to apply modern standards. . . . Age-old experience and intuition demand their rights even though one should refrain from romantic idealization. . . . Only by conquering the material step by step . . . can one hope to grasp the presuppositions which are explicitly and implicitly indicated and which serve to explain the entire style of thought and its inherent interrelations." [14]

[14] Letter, spring, 1938. I quote so extensively because these considerations might be of value for future students of Hindu medicine.

While preparing his manuscript Zimmer became fascinated by another point of view. After a renewed perusal of Sigerist's *Great Doctors* he resolved to set the achievements of Hindu medicine against the background of Western medicine: "thus the story becomes plastic and amusing." [15] And he actually proceeded in this manner in his lectures of 1940, which dealt with medical tradition and the human body, with the physician and his concept of dietetics, and with diseases and cures. Afterwards, he himself realized that the new scheme was inferior to that which he had originally envisaged. It prevented him from exhibiting his peculiar gifts, his original insights. That is why he wished to rework his manuscript for publication. This, to be sure, proved to be an unhappy decision, insofar as he was not allowed to conclude his revision. Yet in some respects it was fortunate, for the finished parts are, at least in my opinion, an infinitely better and much more stimulating presentation, both for the general reader and for the scholar.

The book, as it now stands, first deals with the oldest Vedic tradition, the medical gods, the

[15] Letter, Fall, 1939.

literary evidence, the general significance of medicine, the education and career of the physicians, the hospitals, the implications of medical wisdom, signs and names of diseases (ch. I). Next, the relationship between macrocosm and microcosm is analyzed, the doctrine of the life force and of breath, the theory of the humors and of the body, the teaching of anatomy and physiology are discussed (ch. II). It is safe to say, then, that the book, though fragmentary, covers most of the important aspects of Hindu medicine. For the majority of questions, and for the most intricate ones, we have Zimmer's answers in their final form.

How he intended to go on after having outlined the doctrine of generation, I have been unable to find out. But the second chapter certainly was planned to be not much longer.[16] Moreover, it was to close with a short comparison of Hindu and Greek medicine. Zimmer's opinion on this subject luckily can be deduced from his notes of a lecture

[16] The letter that came with chapter I states that the second chapter would be almost as long as the first. The letter which accompanied the manuscript of the second chapter says that that which was sent "is the greater part of chapter II."

given before the New York Academy of Medicine in the winter of 1942.[17]

What is the relation between Hindu medicine and Greek medicine? A priori an influence of the one on the other even in early times seems not impossible. Quite apart from the dependence on Indian thought attributed by later tradition to men like Pythagoras, Empedocles, and Plato, it is a fact that Greek physicians in the sixth century B. C. lived at the court of the Persian kings to whose empire India belonged. Indian troops were among those whom Xerxes led against Greece in 480 B. C.[18] These facts imply that there must have been an interchange between the two civilizations. But the uncertainty of the chronology of Hindu medical writings makes it difficult to determine the exact nature of any mutual influence. Is it permissible to assume that the old codifications of medical magic of the Aryan immigrants and their

[17] Cf. above p. x, note 2. The title of the lecture is "The influence of Hindu medicine on Greek medicine." I follow Zimmer's line of reasoning as closely as possible. For another interpretation of this problem, cf. A. M. Esser, *Berliner Medizinische Wochenschrift*, 1935, pp. 600 f.

[18] There follows an interesting digression on the mistake made by ancient geographers who identified Egypt with India.

Brahmin priests fall into the first half of the first millennium B. C., and that they contain elements which go back even farther? On the other hand, if Caraka wrote in the first century A. D. and Suśruta in the fifth, it would be quite justifiable to assume that Hellenistic medicine shaped their thoughts, just as Hellenistic astronomy and art gained influence on Hindu civilization.[19]

Turning to the content of medical teaching, one finds astounding parallels. The Hindu theory of the six essences or qualities or flavors (rasa) is strikingly similar to the corresponding Greek concepts (glyky, liparon, stryphnon, halmyron, pikron, drimy). But, whereas in Hindu medicine these qualities form the basis of dietetics and pharmacology, this is not true of Greek medicine.[20] Furthermore, Hindu and Greek physicians concerned themselves with the theory of humors. In India originally, that is before 700 B. C., the number of humors appears to have been restricted to three, while the fourth one, blood, was added later in the works of Caraka and Suśruta. The assumption of an influence of Greek medicine on that of the

[19] For the chronological problems involved, cf. below, pp. 46 ff.
[20] On the subject of dietetics, cf. also below, note 30.

Hindus, at least in this particular instance, seems the more plausible since the fourth humor was never as important as were the other three. Yet the four-humor theory, in Greek medicine, came to the fore at the time of Galen and his successors, while previously its rôle had been insignificant.[21] Even more important, the Hindu interpretation of the various humors differed considerably from the Greek one. This can be shown of bile, and even more clearly of wind or breath.[22] Finally, Hindu medicine did not recognize diseases of the brain; the brain was not regarded as the central organ of thought and consciousness. Thus, the truly startling discoveries of the Greeks were not accepted by the Hindus, and the coincidences, upon closer inspection, also reveal great discrepancies. It is, therefore, safer to suggest an "independent parallel growth and development of ideas, as they could easily come about with regard to the same

[21] Since in his lecture Zimmer referred to me as the one from whom he adopted this rather unorthodox view, I think it better here, too, to acknowledge my own responsibility.

[22] Cf. the elaboration of these topics below, pp. 134 ff. The content of the New York lecture is identical with the corresponding sections of the book.

subjects and problems."[23] The possibility of an exchange of details must of course be admitted and needs further investigation. Generally speaking, however, "the more archaic system of the Hindus apparently was incapable of influencing Greek medicine and, in turn, remained outside the impact and spread of the Hellenistic achievements." Notions seemingly kindred are in the last analysis different, and the whole style and character of the two medical systems differ likewise.

To turn now to the third chapter: here Zimmer intended to start with a discussion of Hindu materia medica, which as "the foundation of countless prescriptions, forms the most impressive bulk of India's therapeutical wisdom."[24] Anyone who is not a trained botanist or pharmacologist, and a specialist in the subtropical flora, will find it hard to understand the complex prescriptions that are given. Even for Hindu experts it is extremely

[23] Even in the case of the Greek Pneumatic School, Zimmer does not find any influence of Hindu theory.

[24] The nineteen pages preserved (cf. above, p. ix) consist of eleven pages of text and eight pages of notes. The letter accompanying chapter I says that the third chapter would be shorter than the first chapter.

difficult to identify all the plants mentioned.[25] One may say, however, that the prescriptions bear a general resemblance to the traditional pharmacopoeia of Western medicine, as it prevailed before the rise of modern pharmacology and experimental chemistry. An enormous variety of widely differing ingredients were mixed into a kind of arcanum:[26]

The specific nature of the single drugs compounded into arcana, though they were described as to their flavors, virtues and so forth, remained to a large extent wrapped in mystery; there existed no technique of experimental tests by which the effects of the drugs might be determined. The efficacy of the drugs was more or less a matter of faith, based on ancient usage and previous experience, as such methods prevail among shepherds and old women; yet the doctors professing Hindu or mediaeval medicine had passed examinations and were of the educated and intel-

[25] A footnote corroborates this statement by reference to the translation of Caraka Saṁhitā by Avinash Chandra Kaviratna (Part XIV, notice, pp. II-III).

[26] As examples a footnote quotes two prescriptions against disturbances of the wind from "The Āyurvedic System of Medicine, or an Exposition in English of Hindu Medicine, as occurring in Charaka, Suśruta, Vāgbhaṭa and other Authoritative Works in Sanskrit Ancient and Modern, by Kaviraj Nagendra Nath Sen Gupta, vol. I, 1919, vol. II, 1925, Calcutta" (II, p. 400).

lectual classes. Similarly, the wizard, the priest, and the medicine-man represent the intellectuals of the primitive age.

Such a pharmacology by its very nature must be conservative. No item can be omitted once it has been approved by tradition, since it may be just this particular factor that brings about success. If the old mixture proves ineffective, new ingredients are simply added. It is in this way that " the amazing intricacy of traditional recipes comes about in the course of time." Tradition is a burden that grows " more and more cumbersome, not to be lightened by any speculative effort, but apt to be rendered still more ponderous through theorizing, and a certain sophistication." The stubborn adherence to tradition which guided Hindu pharmacology like " a sort of Ariadne's thread," is also

the main source of the shortcomings of all traditional knowledge, in so far as it deals with the visible and tangible realm of things and not with the soul and its highest goal, transcendent reality, wisdom and truth beyond the sciences. Traditional medicine and science, outside the pale of modern research, possessed no method for critically sifting by the test of experiment the various resources offered by minerals, vegetables and animals in the way of drugs. The achievement of

modern research and laboratory experiment, which Paracelsus had in mind centuries in advance, did not dawn upon Hindu medicine.

Of course, it is possible that behind traditional usage " there lurks secret truth from which modern research might take its flight toward a new insight." It has happened over and over again that the knowledge of old women on the basis of scientific investigation was proved to be correct.[27] " Mother India and her aged daughter, traditional medicine with its treasure of materia medica " may represent the old woman's true knowledge. One may expect even better results from an examination of Hindu remedies than from that of Western prescriptions. For the latter dealt with items imported from the Mediterranean " and had gone stale before they reached the mediaeval customer." Their notions had become estranged from their original background and context through various migrations:

[27] For exemplification Zimmer refers to William Withering's recognition of the effect of digitalis on the heart, to the dysentery cure through a raw apple diet used by German soldiers in 1915 and proved adequate by A. Heisler and E. Moro.

Hindu materia medica holds a much sounder position. From early times, even before the relatively late invasion of the Aryan tribes in the second millennium B. C., it has grown and matured in the soil of India. It has profited by an uninterrupted contact with the men for whom it was meant, and the products offered by India's soil. During its long development it has accumulated the ever renewed experiences of India's inhabitants, using the resources of their environment for the purpose of healing. With its remarkable insight into the influences of regions and seasons, diet and climate, it records the instinctive and subtle adjustment of the people of India to the peculiarities of her trying climate. Traditional as it is, and overlaid with speculative and systematizing superstructures, it contains the treasure of the "old woman's" experience. "Cowherds and hermits," Suśruta says, "hunters and other people living in the wild forest, those who live on roots, give evidence of the healthy effect of herbs." They supply the medical man with the raw material of materia medica and with the knowledge of the time-tested ways of using it. "Goatherds, shepherds and cowherds," says Caraka (I, 1), "who frequent the woods, and those who live in the woods, know plants by name and sight; but besides knowing the name and appearance of these plants, one should know how to apply them (prāpti). He who knows how to use and combine them (yoga), possesses the knowledge of their essence (tattva-vid). That knowledge charac-

terizes the true physician (bhiṣaj), and he who knows how to apply them according to consideration of time and place, and with due regard for the nature of the individual patient, ranks as a master-physician." These are the stages, which, in Hindu medicine, link up mastery in science with primitive intuition into nature's resources and secrets.

And Zimmer ends with the statement:

Rather tardily science enters the scene, and, with the growth of organic chemistry, explains on what basis the divine plant and kindred substances are entitled to their mythical reputation. Man would have starved and perished, failing to outlive the hardships of the stone age, had he waited for the scientific dietician to explain why he should stick to certain food-stuffs and drugs discovered in his environment, why he should stick to this drink or that, in order to overcome some trouble of soul or bowels.

Traditional belief, unable to analyze and criticize its own experience, stands dumbfounded, if asked its reasons for adhering to its materials or for giving free rein to ideas which do not appeal to the modern mind. It can but point to its real experiences and fanciful formulae; these reflect a combination of inspiring intuitions, beneficial feats of autosuggestion, and actual results which may be corroborated later by tardy science.

Its experiences and discoveries, however, spring

from that same genius of intuition and native curiosity which, from the dawn of civilisation, served to guide man in gaining control over his environment; it has the same source as the spirit active in modern scientific methods and technology.

Many problems of Hindu materia medica might be cleared up by Western botanists and doctors, were they to work on the spot with the assistance of Hindu medical men, and with the people of the countryside, foresters, shepherds, peasants, who supply Hindu doctors with the needed drugs. The particular values of many of these ingredients might be determined by the careful identification of single items of the invariably complex recipes, and by ascertaining the proper action of each separate item.

Whether these statements on pharmacology were to be enlarged, or what other subjects were to be treated next, it is impossible to say. A batch of pages containing what seem to be final corrections, though not numbered or retyped, deal with diet and the cure of diseases. These topics were also discussed in the lectures of 1940. I shall try to reconstruct from the few corrected pages and from the original manuscript the main outlines of Zimmer's views.[28]

[28] Zimmer seems to have worked out the various subjects independently; no transitions are indicated. I have re-arranged the

Diet is an important part of Hindu medicine, not only as regards the sick but also as regards the healthy. India, with its peculiarly trying climate, is haunted by epidemics and infectious diseases. From these conditions results the extreme instability of human life which is reflected in the common Hindu outlook on human existence and forms the background of the pessimism voiced by the Hindu philosophers. It also determines the specific task of the Hindu doctor. Caution is the watchword: "By an elaborate system of dietetics Hindu medicine teaches man how to keep fit, how to deal carefully with the individual amount of life strength with which his organism has been endowed, how to reach old age, how to enjoy a long and healthy life."[20] A balance of the humors is needed and can be established primarily through a proper diet "corresponding to the age of the individual and to the type of organism, whether it is a bilious or a phlegmatic one, or one in

thirty-three corrected pages (cf. above, p. ix) in an order that deviates from that in which they were found. The manuscript of 1940 could not be found in its entirety. Even those parts that are preserved are sometimes marked "erledigt," and have already been integrated into the book.

[20] For Hindu medicine as macrobiotics, cf. above, p. xliii.

which wind prevails." An elaborate doctrine of the virtues of all food stuffs is evolved; their qualities are determined by the experiences of the organism in tasting and digesting them. Through their "saps" or "flavors" these various substances are related to the individual substances of the humors, and "a detailed system of the affinities to be traced between these saps and the three humors constitutes the foundation of Hindu dietetics and therapy." [30]

As for the causes of diseases, an upset digestion is the foremost among them. Food that is not completely dissolved is regarded as a powerful poison (Caraka, VI, 15). A common cause of many kinds of disorders is the disregard for the basic rules of a carefully controlled diet, as summed

[30] The lecture of 1940, after enumerating these saps (6 in number), gave a sort of descriptive catalogue listing all kinds of meats and vegetables and other ingredients of human diet, including medicinal herbs, fruits, roots, and minerals which are fit for medicaments. Two of the corrected pages analyze "the main points to be considered with regard to ordinances about the diet of the healthy and the ailing [are] summed up by Caraka (III, 1, 2) under eight headings." Three others add that the treatment of particular diseases should be based on the principle *contraria contrariis* (Caraka, I, 10), enumerate the two kinds of poison also used therapeutically and note that 600 purgatives based upon six kinds of vegetable produce are described by Caraka (I, 4).

up by Caraka under the eight headings dealing with the proper use of food, drinks and drugs.[31]

Taking up the diseases and their cures themselves Zimmer first discusses those caused by foreign bodies, by worms and vermin. Such animals found within the human body are described and classified by Caraka (III, 7). Any cure

should proceed along the lines indicated for all kinds of treatment, first by removing the worms through cleansing (samśodhana); next by counter-attacking and "smashing" (vighāta) the matter from which they spring; then through "appeasing" it (saṁśamana); and lastly by eliminating the cause (nidāna) of the disturbance.

The fact that the Hindus believe that the worms "spring from its [the body's] very life substance" gives occasion for a digression that is very characteristic of Zimmer's way of thinking:[32]

Even Hegel in his Natural Philosophy, which, by the way, is the weak spot within his encyclopedic doctrine, makes the following bold statement: "it is, however, an erroneous hypothesis to assume that

[31] Cf. preceding note.

[32] The English wording of this quotation and of some of those that follow has been slightly changed.

tapeworms within the human organism originate from eggs of animals that have been swallowed." On the contrary, once some part of the organism "no longer acts as a mere moment or element of the whole but becomes ascendant," that is, once it separates itself from the rest and becomes independent,—a state of affairs that in the case of the humors is described by the Hindu physician as "infuriated" (kupita)—"this separation may lead, e. g. in the case of 'separated digestion' (a disturbance of the stomach and of the intestines), even to the generation of animals within the bowels. Moreover, every animal has occasionally worms in its heart, its lungs or its brain."

It is partly due to Hegel's conservative attitude, partly to his romantic view of nature in general, that he could advocate this traditional theory that had been challenged by his contemporaries. What his statement actually means is this: the body is being punished for having failed to subordinate its antagonistic elements or moments to a superior and more perfect whole that enables it to function without disturbance—in other words, for having failed to conform to the dialectical rules of Hegelian philosophy and logic which mirror the very laws of nature.

According to Hindu cosmology and science, it is characteristic of the living principle that being endowed with an unlimited power of self-transformation it manifests itself in the innumerable forms of matter, be they minerals, vegetables, or animals. It is this

idea that has again and again assumed command over natural philosophy and that traditional Western learning has in common with Hindu medicine. For the assumption of a living principle constitutes an important check on materialistic views, such as for instance the concept of dietetics, as it was understood not so long ago, and according to which food was considered as dead matter, mere fuel that serves to heat the machine of the living organism,—a very limited view indeed, where food is evaluated solely on the basis of its content of fat and albumen. A boundless vision of life, on the other hand, acts as a kind of romantic counteragent against merely mechanistic theories; it has inspired the detailed and exact investigations of modern scientists who believe that we cannot expect to keep alive by feeding exclusively on devitalized and sterile substance.

Hindu medicine is based on the idea of a universal living force that pervades everything, the atoms of the elements as well as the higher organisms of men and animals. Whenever Western science has turned toward a monistic principle in order to counterbalance a drift toward over-specialization that threatens to atomize the whole of nature and to hide its broader aspects behind the vast masses of detail, it has met Hindu medicine half-way. At that moment Hindu lore with its semi-mythical method of intuitive speculation appears as a kind of early twilight that preceded the height of the scientific day. It seems to represent

a pictorial script in which certain lines are indicated that may serve as a guide for modern thought, which with its own critical method attempts to take up and to solve certain problems that are as old as the hills.

After this digression, individual diseases due to the humors are discussed. The first is elephantiasis. Its description by Suśruta (II, 12) is unsatisfactory from the modern point of view:

Still, Suśruta's diagnosis of elephantiasis contains the pertinent comment pointing out the fact that the disease is mostly prevalent in regions where much stagnant water is to be found, an insight that does credit to the subtle gift of observation so conspicuous in Hindu medicine.

Next, jaundice is dealt with. The chapter that is devoted to this disease in Caraka's compilation (VI, 16)

shows what skill classic Hindu medicine, in the course of one millennium, has achieved in diagnosing and treating this and similar maladies as compared with the archaic method of the Vedic period cited above.[33]

One general comment also deserves mention:

[33] Cf. below, pp. 3 ff.

How far an illness may be curable or may tend to be fatal is thought to depend on how far it has penetrated into the different layers of the organism which are continuously built up through metabolism, the sequence of transformations through which the life-sap passes.

As long as the disease affects only the three or four first stages into which the life-essence of the organism is gradually transformed, blood, skin and flesh, it may be conquered. If it reaches the subsequent stages of metabolism, the more vital and subtle transformations of life substance, namely the bones, marrow and semen, the disease is beyond cure. That is why Hindu medicine insists on early treatment. The morbid matter which at first upsets blood, skin and flesh will invariably reach the more vital layers of the organism through the very alchemy of nature which constantly refines these primitive transformations into the higher ones.

There follow a short remark on skin diseases (Suśruta, II, 5), a somewhat longer account of abscesses or tumors (Suśruta, II, 9), and finally a section on insanity (Caraka, VI, 9).

The latter illness lies on the borderline of the natural and the supernatural. For it is to be explained either by a disturbance of the organism —the "incensed" elements overflowing into the

special canals which carry the subtle mind-stuff—or by the influx of superhuman powers:

The physician may diagnose a patient as being seized by some god, if, departing from his normal behavior, he adopts in any way the attitude of a divine being—if his glance is mild and placid, his demeanor grave, haughty and unwrathful. In this case the patient does not seem to need sleep; his perspiration and excretion are scanty; his person emits an auspicious odor, and his face looks like a full-blossomed lotus flower. All these are features of the gods: they never grow tired, their subtle bodies do not perspire, nor do they partake of the substantial food of earthly beings; hence the auspicious odor of their persons.

A patient seized by a goblin (yakṣa) exhibits the various characteristics of that kind of spirit. He laughs frequently, weeps and falls asleep. He is fond of dancing, singing and music. He likes to recite and to tell stories; he longs after food and drink, is fond of bathing, garlands, incense and aromatic substances. His eyes are suffused with blood. He quarrels with Brahmins and doctors and talks to himself.

A patient invaded by a demon who, roaming by night, devours men and feeds on raw meat, enacts the rôle of this monster (rākṣasa). He never sleeps, refuses food and drink, is fond of swords and knives, of blood and raw meat, and likes garlands of red flowers. His attitude is threatening and reviling.

In this manner the physician may diagnose what particular kind of superhuman being has got hold of the madman. Prayers, formulae and offerings, to propitiate the intruder, form part of the treatment, if there is any hope. In case the madman, in an act of rage, turns his hand against others or against himself, there is no cure.

And this observation leads to the remark that

the popular religious teachings of the Purāṇas and the theories of the medical texts proper agree as to the divine and demonic character of diseases, those in particular whose symptom is fever. The popular compilations, in fact, draw upon the learned texts for their chapters on diseases and healing; what they tell the lay-folk whom they address could as well figure in a medical textbook.

Fever, for instance, in Brahmavaivarta-purāṇa (Brahmakhaṇḍa, 16, 24 ff.), is described as the most dreadful and irresistible of all diseases, and the origin of other diseases. It is looked upon as a fierce demon with three heads, three legs, six hands and nine eyes. He appears in a terribly deformed shape. His cruelty of nature is counterbalanced by his devotion to Śiva, the supreme lord of destructive forces, demons and spectres; for this reason he is reckoned a great saint. His father, Indigestion, in turn originates from the three humors.

All diseases, on the other hand, are the sons of

Death, who in Hindu mythology is a female figure. Her daughter is Decrepitude. Among the means for warding off this powerful daughter of Mother Death, Puranic popular medicine prescribes exercise, walking in the spring season, occasional intercourse with a young girl, regularity in diet, anointing the head and the soles of the feet with oil, covering the body with cooling sandal paste against the heat of the sun, avoiding exposure to the rains, and to the sun in autumn, warm baths in summer, and so forth.

This much I was able to rescue from Zimmer's notes and outlines and from his original manuscript.[34] Before I leave the reader to study the book itself, I shall adduce some general considerations which I found on two pages of the lectures of 1940. If I am not deceived by my memory, Zimmer concluded the Noguchi course with these remarks. I like to fancy that with them he would also have concluded his book: [35]

[34] The appendices, intended to illustrate the entire scope of Hindu medical teaching (Letter of 1942, cf. above, p. ix), were too fragmentary to be included.

[35] Together with the pages from which I quote I found a short note, marked "Conclusion III", which outlines considerations similar to those given on the preceding pages. Unfortunately they are incomplete and can therefore not be used.

PREFACE

If one looks back now with somewhat mixed and contradictory feelings at the main characteristics of Hindu medicine, one comes to realize how many misunderstandings, if not actual harm, have been caused by the attempt to weave its various features into a logical and systematic pattern. The faulty result of such a procedure implies a warning that that which pleases human reason may be worlds apart from the course that nature takes in weaving its strangely intricate web of devices by which it produces a living organism or brings about the collaboration of the various organs necessary for the continuation of the living process or for its defense against harmful influences. The human mind due to its very faculty of reasoning is apt to fall short of its goal: to grasp what might be called the reality of things, an objective that seems forever to be receding from its grip, even despite the fact that reason at the same time has acquired an ever-increasing hold over nature. The persistent advance into the region of the unknown, into the no-man's land of scientific research, finds its own limitation in the power of reason that is apt to overreach itself by trying to systematize and to simplify the intricate ways of nature.

As for Hindu medicine, the human mind, starting with primitive experience and acute observation of nature and its resources, was caught in its own net. Medicine remained isolated from the other, subsidiary sciences that should constantly check and criticize its

own methods and results. In this way, it lacked the power by which to free itself from the net of its own imperfect achievements.

This negative impression, however, is counterbalanced by the unchallenged reputation that Hindu medicine has enjoyed throughout the centuries. Even today Hindu students of medicine who have been trained in Western critical research get their inspiration from the wealth of information and from the serious endeavor of their ancient predecessors. They feel that if they would succeed in penetrating the primitive experiences and insights that lie buried beneath the huge building of abstract theories, they might be able to contribute new aspects and methods to our present-day knowledge of health and of preventive medicine. The authoritative character of the ancient teaching remains an amazing fact not to be taken lightly or to be disposed of on the ground that it sprang from the naive and primitive archaic mind. Moreover, it must be remembered that Hindu medicine throughout the centuries remained faithful to its ancient tradition. For the prestige and success of the medical profession and its representatives, the actual results in restoring health or saving and prolonging life, which in India were not computed by statistics, are far less important than their consistency with the general outlook on life characteristic of the various epochs. To be sure, the physician is expected to do his utmost in treating diseases of every kind, even to

work miracles, if he is really competent. Still, it is first of all his moral assistance that is of value to his patient. It is his attitude towards the ailing individual and towards society that really matters, if medicine wishes to receive the credit that it needs in order to pursue its task. As long as medicine is in agreement with the general ideals, views, prejudices and superstitions of its own time and civilization, its actual achievements or shortcomings are of minor importance. They may be left to be discussed by the inner circle of experts who are aware of the limits of their own art.

INTRODUCTION

Hindu medicine attracted the attention of Western scholars at an early period of Indic studies. Prior to J. F. Royle's *Essay on the Antiquity of Hindoo Medicine*, London 1837, which was the first book on Hindu medical wisdom published in Europe,[1] H. H. Wilson, the great pioneer of Sanskrit philology, succeeding W. Jones and H. T. Colebrooke, introduced Hindu medicine to the forum of Western science through an essay "On the Medical and Surgical Sciences of the Hindus" in 1823.[2] During the intervening century Western and Hindu scholars, in turn, edited and translated the main texts of Hindu medical tradition.

The earliest specimens of Indian medicine, contained in the hymns of the Atharva-Veda, are available in W. D. Whitney's translation;[3] the three classic encyclopedias of medical wisdom of the era A. D., viz. Caraka, Suśruta and Vāgbhaṭa, have also been translated.[4] Besides the contributions of A. F. R. Hoernle, P. Cordier, M. Bloomfield and others on the history of Hindu medicine, there is the outstanding monograph by Julius Jolly, *Indische Medizin*,[5] which treats with equal mastery both the philological and the medical aspects of

the subject. Anyone approaching the vast field of Hindu medicine will find ample material in a fairly well digested form, if he uses Jolly's comprehensive survey along with the translations of the three classics, and he will appreciate the introduction thus afforded to subsidiary comments and presentations by other scholars.

The present summary, at once condensing and enlarging the contents of three lectures presented to medical students and a general audience at the Institute of the History of Medicine at the Johns Hopkins University in Baltimore, cannot pretend to vie in any respect with Jolly's thoroughly detailed description. In presenting characteristic elements of Hindu medical tradition through selections from its classics, the present work offers an approach to the understanding of the aims and ideals of Hindu medicine, its characteristics, and its possible value for stimulating and enlarging the views of today's medicine. Since the latter is, after all, confronted with the same questions as the physicians and sages of ancient and mediaeval India, modern medicine may well gain a fresh impulse and insight through reviewing the venerable history of the Hindu discipline.[6]

I. MEDICAL TRADITION AND THE HINDU PHYSICIAN

THE earliest documents of Indian medicine are found in the metrical parts of the ancient tradition of the Vedas, mostly in Atharva-Veda.[1] There they appear among seven hundred and thirty-one hymns, charms, and incantations which belong to the first centuries of the first millennium B. C. Some, presumably, go back to the second millennium and, at least in part of their substance, to an even earlier period. The Vedic term for medicinal charms, "bheṣaja," also occurs in the Avesta language of the ancient Persian texts of the Zarathustrian religion (baeṣaza, baeṣazya), and points back to a primitive tradition in which both groups of Aryan tribes shared at a period prior to their separation, that is, before one of them filtered into India, conquering it, while the other laid the foundations of the ancient Persian empire and civilization.

These Vedic records of early medicine are couched in terms of imprecations against demons,

sorcerers, enemies; of charms for expelling diseases wrought by demons or sent by the gods as a punishment for man's sin; of incantations intended to impart health, longevity, success and victory, sex-attractiveness and manly vigor. All these are topics of medical interest that recur in classic Hindu medicine. In the Vedas, the songs are supplemented by amulets, medicines, philters and other devices of witchcraft, and show a prevalence of the magic element. This suggestive element persists throughout Hindu medicine, it forms part of its "psycho-somatic" approach to the task of healing. In classic medicine it is balanced, in time, by an increasing emphasis on rational theory, based in general on the "humors," as active in the metabolism of the human body, and on the efficacy of those foodstuffs and drugs which were thought to correspond to them in nature.

In Vedic medicine there is not, as yet, a marked difference between diseases and demons; this distinction is developed later in the growth of classic medicine, which attempts to treat many maladies strictly along the lines of humoral therapy or through surgery. In the later periods, even though the demarcation between diseases and the realm

of demonic powers remains undefined, only those diseases which to some extent defy rational treatment are treated by propitiation and magic. Diseases, in the Veda, are looked upon as possession by demonic personalities, or as visitations by the gods. Dropsy (jalodara: "water-belly") is sent by Varuṇa, the god residing in the all-knowing, all-encompassing primal waters of the universe. He watches over the fulfilment of oaths and pledges which are sworn by taking the divine waters as witness, and punishes the perjurer by fettering his body with his threefold watery noose. Fever is sent and graciously taken away by Rudra-Śiva, the lord of ghosts and destructive forces.

Jaundice (hariman: "yellowness"), when accompanied by heart-burn, requires the propitiation of two demons through a cumulative series of charms. These charms (Atharva-Veda I, 22) form part of a magic treatment, the single stanzas accompanying, step by step, the medical ritual.

First, the two demons of jaundice and heart-burn are conjured to leave the patient's body. A more congenial abode is pointed out and assigned to them, in the hope that this prospect might render them more willing to leave the ailing person: this

abode is the sun, the burning center of yellowish light. The patient is addressed:

> Both shall go up towards the sun,
> thy heart-burn and thy yellowness.

At the same time, there is bound on the patient's body some of the red color intended to dislodge jaundice from his complexion and his system as well:

> With the color of the red bull,
> with that we enclose thee.

Meanwhile an amulet made from the hide of a red bull is tied onto the patient.

The amulet, beforehand, has been dipped into cow's milk, and the residue of melted butter used as an offering to the gods has been sprinkled upon it. What is left of the holy food, shared by the divinities, and thus consecrated through the sacramental act of the sacrifice, is believed to have been transubstantiated into the divine fare of the celestials; it shares in the virtues of soma and amṛta, the "nectar and ambrosia" (amṛta, "deathless," etymologically corresponds to Greek ἄμβροτος, ἀμβροσία) on which the immortals live. The amulet, sprinkled with the dregs of the vessel

of oblation, imparts to the patient the power to conquer death. The food consecrated to the immortals serves as the most powerful antidote against the forces of destruction.

The patient, then, is made to drink the milk which has absorbed the virtue of the amulet. Thus "yellowness" is attacked from within and from without, with the idea of displacing it by the color red.

The charm, then, proceeds:

> With red color we enclose thee
> for full length of life;
> that this man be free from defects,
> and become not-yellow.

With this charm goes another parallel treatment, by which the demonic disease again is attacked from inside and out: the patient is served a dish of rice which has a reddish color, having been seasoned with turmeric (haridā), and he is anointed all over his body with the remnants of this dish.

As his limbs are rubbed, the following stanza is chanted:

Those whose divinity is the Red One,
the cows that are red,
form after form (i. e. limb after limb),
vigor after vigor,
with them we enclose thee.

Finally, jaundice is washed out of the patient's body by a magic ablution, and is transferred into yellow animals, where it might more appropriately choose to abide. Demons, we are taught in the Gospel (according to St. Mark, 5), when expelled from the human body, ask for some other lodging, preferably in another organism. "Send us into the swine, that we may enter into them," so the legion of unclean spirits besought Jesus, when he worked his magic cure on him who was possessed with the devil, and they "went out and entered into the swine." Here, in the case of jaundice, the yellow color represents the very demon of the disease; to transfer this symptom, the visible manifestation of the demon's presence in the patient's body, into some other living being is regarded as the main task of the cure.

The patient is laid upon the bare leather-bands of the bedstead and some yellow or greenish birds,

parrots and others, are tied to the left leg of the bed with yellow strings.

Then, "yellowness" is dislodged by water poured over the patient's body, dripping down upon these birds whose color suggests an affinity with the nature of the illness. The process of transferring it into them is enforced by the charm:

Into the parrots, the ropaṇākas (a kind of parrot),
we put thy yellowness,
likewise in the hāridraves (apparently a yellow wagtail)
we deposit thy yellowness.[2]

Among the main characteristics of this kind of magic cure are:

1. an approach to the disease-demon from as many vantage-points as possible, by various parallel procedures;

2. an attempt to secure complete effectiveness of these means by accompanying spells which state their virtues and the cogency with which they operate;

3. an appeal by suggestion to the patient through addressing him and acquainting him, at every step of the cure, with the process and progress of healing.

The first feature, the many-sided approach, shows the elaborate and circumspect character of medical magic. It is far from being primitive: it utilizes the knowledge of many substances and experiences, techniques and general ideas, and it combines them to secure the defeat of the demons of disease. On the other hand, the array of means, in assailing the demonic power, betrays some incertitude as to the desired outcome of the treatment. In a way, it seems doubtful how far one alone of these magic remedies would go toward bringing about the expected result. The transferring of the disease to the sun; the red amulet moistened with the ambrosial fluid of immortal life; the milk-potion fortified with the virtue of the amulet; the reddish dish of rice, and the ablution with what remains of it, after the patient has partaken of it; and, finally, the transferring of the jaundice into the yellow birds; none of these by itself seems to be considered wholly reliable in its effect. With this kind of treatment, the intention is to be on the safe side. It combines all that experience and thoughtful intuition have gradually contributed to tradition.

The explicit description of what is going on is

indispensable for securing the desired effect, and it is essential that it be couched in Sanskrit, the traditional language of priestcraft, the holy language of the gods and the vehicle of truth. Without the knowledge of the magical and descriptive stanzas, and without the careful recital, the proper traditional intonation of them, the effort would be considered vain, and as useless as the uttering of the stanzas without the proper performance of the corresponding rites.

The appeal to the patient's imagination in so addressing him, the conjuring up of the healing forces inherent in his body to assist the doctor in his efforts, all these practices again point to the magic or psycho-somatic character of this kind of treatment.

Moreover, the accumulation of several means and drugs to be on the safe side (the persuasive power of charms playing a rather subsidiary rôle) and the stimulating of the patient's spontaneous forces for recovery, all these traits persist through the subsequent, somewhat more rational, periods of Indian medicine.

The metrical parts of the Vedas likewise contain the earliest documents of Indian materia medica: two hymns addressed to healing herbs, blended into arcana (Atharva-Veda VIII, 7 and Ṛgveda X, 97).

Atharva-Veda VIII, 7, in the tradition of the commentators, appears as "a charm bestowing longevity; the divinities to whom it is addressed are the herbs mentioned in the hymn."

The earliest text, commenting on the proper use of this kind of charm, explains that the hymn is used in a remedial rite against consumption (yakṣma) and all other diseases, together with a gilt and lacquered amulet of splinters from ten kinds of trees which is sprinkled with the residue of the sacrificial potion offered to the gods.[3]

The hymn, consisting of twenty-eight stanzas, runs as follows:

1. Those that are tawny and that are bright,
   the red and the spotted,
   the swarthy, the black herbs,
   all do we conjure hither.

2. Let them save this man
   from Consumption sent-by-the-gods,

these plants, fathered by Heaven, mothered by
Earth,
whose root is the primal cosmic ocean.

3. The divine herbs in the beginning were the
primal waters;
they have made depart from thee, from every limb,
thy sin-born Consumption.

4. The spreading, the bushy, the one-spathed,
the extending herbs, I conjure hither.
Those with shoots, those with joints, those with
spreading branches,
I call for thee the plants that are of all gods,
mighty, life-giving unto man.

5. Whatever power is yours, ye powerful ones,
whatever valor and strength is yours,
therewith free ye this man from this Consump-
tion,
O herbs! Now do I make a remedy.

6. The lively, by-no-means-harming, living herb,
the non-obstructing, upward-leading,
nourishing flower, rich in sweets,
do I call hither,
to make this man free from harm.

7. Hither shall come the forethoughtful ones,
the allies of my spell,
that we may safely ferry over this man from
distress.

8. Food of Fire, fruit from the womb of Waters,
growing up renewed, firmly rooted, named a thousand names,
be they remedial in being brought.

9. With Avakā (Blyxa octandra Rich) as their hull,
with the waters as their nature,
May the sharp-horned herbs rend distress asunder.

10. Those that release, dispel Varuṇa (i. e. dropsy),
the mighty, the poison-destroyers,
the swelling-dispellers as well,
the spoilers of witchcraft,
May these herbs come hither!

11. The purchased, and praised, most powerful plants,
May they protect in this village
cow, horse, man and beast.

12. Rich in sweets the root, rich in sweets the tip,
rich in sweets has grown the middle of these plants;
rich in sweets the leaves, rich in sweets the flowers of these,
partaking of honey, a drink of the elixir of immortal life (amṛta),
May they milk forth melted butter, food,
and first of all, milk.

13. How many and whatsoever be these herbs upon the earth,

May they, the thousand-leafed,
release me from death, from peril.

14. May the tigerish amulet of plants,
protecting, guarding against imprecations,
smite far from us diseases and all demons.

15. As at the lion's roar,
they start with fear,
as at fire, they start fearing the herbs brought hither;
May Consumption of kine, of men, be gone,
driven out by the plants, beyond the navigable streams.

16. Herbs, released from the Fire who-dwells-with-all-men (Vaiśvānara),
go ye stretching over the earth,
ye whose king is the forest-tree.

17. Those herbs, related to the Aṅgirases (the semi-divine first Brahmans),
which grow on mountains and plains,
May they be rich in milk, propitious,
weal to our heart.

18. Those plants I wot, those with the eye I see,
the unknown and the ones we know of,
and those in which we wit the virtues brought together,

19. May all herbs together note my spell,

that we may safely ferry over this man out of distress.

20. The Aśvattha (-tree, Ficus religiosus Indica), the Darbha (-grass, Saccharum Cylindricum),
Soma, the king of plants, oblation, the immortal dish,
rice and remedial barley, ye twain immortal sons of Heaven,

21. Rise ye up;—it thunders and roars at (you), O herbs,
when Parjañya (the god of rain) favors you with seed,
O ye children of the Spotted Cow (the earth).

22. Of this divine elixir of immortal life (amṛta)
we make this man drink strength;
now I do make a remedy,
that he come to a hundred years.

23. That plant the boar knows,
that remedial herb the mongoose knows,
those ones the serpents, the Gandharvas know (the genii of the amṛta-containing moon-cup, guardians of the vegetative lunar cycle),
those I call to his aid.

24. Whatsoever herbs, related to the Aṅgirases, the eagles,
whatsoever divine ones the bees (?) know,

whatsoever the birds, the swans know, and all
winged ones,

25. Of however many herbs the inviolable kine eat,
of however many the goats and sheep,
May all these herbs, brought hither,
extend protection unto thee.

26. In however many herbs the human physicians
find a remedy,
so many, all-remedial, do I bring unto thee.

27. Those rich in flowers, rich in shoots,
rich in fruits, those fruitless ones as well,
like mothers assembled, let them yield milk
unto this man for freedom from harm.

28. I have snatched thee away from Him-with-the-five-stings,
and from Him-with-the-ten-stings as well,
also from the fetterlock of the Tamer (Yama, King Death),
from all sickness sent by the gods (in retribution for offences).

The demon disease, to be expelled from the patient's body through the magic ritual of which this hymn forms the oral part, is regarded as extremely powerful, since the whole array of the healing powers the vegetable kingdom has in store

is conjured to fight him off. The term "Consumption," used in a rather vague but very comprehensive way, somehow seems to cover an anonymous collection of malignant forces which cause the ailing person to languish. Accordingly the doctor-magician calls upon the herbs and plants to furnish all possible aid.

The underlying idea seems to be that there are, strictly speaking, no herbs whatsoever that are destitute of healing power. All of them have a specific character, particular virtues of their own, which are manifested in their many forms, colors, the places where they are found, their uses, their effectiveness, and so forth; accordingly all these various forces may be brought into play to prevent the decline and loss of life-power, if properly propitiated and harnessed to the physician's efforts.

The gathering together of all plants and herbs existing on earth by the enumeration and description of their characteristics and forms, is one of the *leitmotifs* of the hymn (1, 4, 8, 13, 27); the full treasury of healing forces in vegetation, called by "a thousand names" (8), is to be brought to the aid of the patient. Insofar as they form part of the physician's wisdom, they are all brought together

and blended into an all-powerful arcanum; but there are many which are unknown to the doctor-herbalist (13, 18), nor are they listed by medical tradition; however, they are well-known to other beings, domestic animals and beasts of the wilderness, birds and insects; and to genii presiding over the life-cycle in man and nature (23-25). These are conjured to enter the arcanum magically and, present in virtue if not in substance, to concur in the effect of healing (19).

Another recurrent *leitmotif* of the hymn is the solemn laud addressed to the herbs and their virtues. It proceeds along the traditional lines of praises offered to the gods in Vedic hymns and, later on, in the mythical epics of Hindu popular tradition (purāṇa).

The origin of the herbs is extolled, their ancient and noble lineage is pointed out in flattering terms: they are praised as the first-born of the divine aristocracy of beings, for they all spring from Father Heaven and Mother Earth, the primordial divine pair; they have their origin in the primal waters which brought forth the body of the universe and the organisms of all creatures and

which maintain them by circulating under various forms through macrocosm and microcosm (2, 3).

Moreover, the herbs are reminded of the ancient semi-divine ancestors of the oldest Brahmin-clans, of the Aṅgirases (17, 24), who were the first to discover their virtues and to use them in magic treatment. The herbs are told that they were familiar even to these priestly supermen, these early inventors of magic, who, by their concentrated power of vision, helped the gods to their seats on high in the struggle between divine and titanic powers for world-supremacy.

The many virtues of the herbs are specifically insisted upon (4-7, 9, 10); they are vividly described as irresistible, to make their effectiveness doubly sure (15).

These main themes reappear again and again; with their variations and repetitions, they form the structure of the elaborate score of the charm. The insistence in the refrain is intended to praise and invoke the divine personalities of the herbs; at the same time it is meant to operate along the lines of psycho-somatic treatment as a suggestive stimulus to the patient's will to recover. The varied formulae act as so many comforting, reassuring compul-

sions on the patient, affording every possible help to his ailing organism.

The plants themselves are blessed, that they may prosper and spread on earth (16), and increase as a blessing to man, by being brought within the human sphere (11, 17). Underlying is the idea that the divine herbs, like most extrahuman powers, display a fundamentally ambivalent attitude towards man; that they are indifferent, at best, to man's weal or woe, unless propitiated and made friendly through an established ritual of magic. The herbalist-magician is aware of the fact that the herbs might be reluctant to succor man in his need, or might prove vengeful, having been uprooted and estranged from their proper soil. Their favor has to be courted, not only by extolling their origin and virtues, but by expressly alluding to the hoped-for beneficent aspect, which they are urged to disclose. In an apotropaeic euphemism, they are styled "by-no-means-harming," "non-obstructing," and so forth (6); their beneficent nature is thus bespoken and emphasized to ward off any possible ill-will, which might manifest itself in a harmful, even poisonous effect. Finally they are besought to protect, in general, the health of the

inhabitants of the village, men and animals (11).

Other stanzas refer to the actual implements of the treatment; the herbs are besought to bestow their life-giving essence upon the arcanum (12, 17, 25, 27). Possessed of the virtues of the elixir of immortality, or the milk of life, this arcanum is administered as a potion, acting internally to drive consumption out of every part of the patient's body. As an external measure, the patient has tied to himself an amulet of herbs, whose " tiger-like " strength is praised (14).

Moreover, the magic power of the principal sacred ingredients and implements of the sacrifice to the gods is invited to join forces with the herbal arcanum as it takes effect (20): the Aśvattha tree, which yields the stick for stirring the sacred and the domestic fires; the holy grass (darbha), which is possessed with exorcising power. The latter serves to cover the altar and the seat of the Fire-god; moreover it is bundled into a brush and used to scrape clean the sacrificial ground, to remove particles of defiling matter which might harbor demonic forces obstructive to the sacrificial procedure. These powerful utensils are invoked to cooperate with the usual oblation to the

gods: Soma, the nectar, which invigorates the celestials; barley-water and rice-cakes, transubstantiated into divine fare through having been offered to the gods. And the divine materials, evidently, are to be activated through the unconsumed remainders which are sprinkled upon the amulet. This medicinal ritual is to be inferred from the parallel hymns and the treatments of which they form the oral part.

An indispensable element of the charm, intended to secure definite effectiveness, is the solemn and explicit statement that the treatment has already operated according to expectation: "I have snatched thee away," the doctor addresses the patient in concluding his magic work, ". . . from all sickness . . ." (28). The result, however, is stated in an anticipatory way, as an evocation of the desired effect, at the very outset of the procedure (3): "they have made depart from thee . . . thy sin-born Consumption."

The all-powerful arcanum of this hymn exhibits a complex pattern of motifs. It looks like the final result of a prolonged process of adding and blending all possible means of treatment together with their proper formulae. To what extent smaller

charms, once independent, or fragments of earlier hymns were combined to form the incantation as it stands, can only be surmised. Here, as in many far more extensive and famous instances of sacred Hindu tradition, as in the "Bhagavadgītā" for instance, a complex mosaic, meant to be encyclopedic, became the classic vehicle of thoughts developed during earlier periods. The intention to create a formula, all-effective through being all-embracing, is evidenced in the present form of the hymn, hallowed by faithful tradition in subsequent ages. It exhibits a wide and detailed knowledge of what forms the subject-matter of materia medica, and it reveals an intrinsic diffidence and insecurity with regard to the specific effectiveness of the components of this highly praised arcanum.

This is the typical aspect of Vedic materia medica, as is borne out by another extensive document of Vedic pharmacopoeia, Ṛgveda X, 97:

1. Those herbs, the first-born of the gods,
   three ages of the world ago,
   those will I worship in my thought,
   the hundred-and-seven virtues of those (with new) tawny (sprouts).

2. Hundred, O mothers, are your virtues,

and thousand your shoots,
ye, of hundred potencies, then,
make me hale this man.

3. Rejoicing, herbs, respond,
ye with flowers, ye with shoots,
like mares, winning the race,
eager, the plants to ferry over to the side of safety.

4. Herbs !—thus I address you, mothers, goddesses,
may I win horse, cow, clothes,
. . . thy life-spirit (ātman), O man!

5. In the Aśvattha (-tree) your seat,
your abode made in its leaf,
ye like milking cows would be,
when you better me this man !

6. With whomever the herbs have come together
like kingly chiefs unto the gathering,
that Brahman is called a "healer" (bhiṣaj),
a demon-killer, a plague-dispeller.

7. The rich in mare-like waters, the rich in Soma,
the invigorating, the one excelling in strength:
all herbs found I for this man
to free him from harm.

8. Like cows from the cowpen
stream forth the virtues of the herbs,
eager to secure rich fee (for me),
(for thee) thy life-spirit (ātman), O man!

9. Weal-working is your mother's name,
hence you are Woe-expellers.
Winged streams are you;
you expel what ails.

10. Over all enclosures they have climbed,
like a thief into the cowpen.
The herbs have driven away
all defects of the body whatever.

11. Since, strength-imparting, I hold
in my hand these herbs,
the life-spirit (ātman) of Consumption vanishes,
as if in front of Him who seizes the life-soul
(Yama, King Death).

12. Whom, herbs, you crawl along,
limb by limb, joint by joint,
from him Consumption you divide asunder,
as, located-at-the-center,
the mighty (king divides asunder the ring of
neighbor kings who prey upon his realm).

13. Fly away, Consumption, together with the jay,
with the blue jay,
with the blast of the wind,
with the storm, vanish!

14. One of ye help the other,
one to the other be helpful,
ye all, of one consent,
help onward this my spell.

15. Those with fruit, those without fruit,
those flowerless, and those with flowers,
impelled by the Lord of Magic Spells (Bṛhaspati),
may they deliver us from ill,

16. may they deliver me from imprecation,
and from (the dropsy) that-comes-from-Varuṇa,
and from the Tamer's fetterlock (sickness unto
death),
from all god-sent diseases.

17. Flying down from heaven the herbs spake:
Whom, alive, we reach,
that man does not perish.

18. Whatever herbs there are in Soma's kingdom,
the many, wise a hundred-wise,
of these thou art the best,
ready to desire, weal to the heart.

19. Whatever herbs ye be in Soma's kingdom,
spreading earth-wide,
impelled by the Lord of Magic Spells,
lay your strength together in this herb.

20. May he not come to harm who digs you,
nor he, for whom I dig you;
our two-footed, our four-footed
all uninjured be.

21. Whatever plants hearken to this spell,
and those gone out of reach,

all flocking here together,
shall give their strength together in this herb.

22. The herbs consult with Soma, with their king:
"For whom a Brahman works a charm,
him, O king, we ferry over to the side of safety."

23. Thou art the best, O herb,
the trees to thee are servants;
Be subservient unto us
He, who seeks to do us harm.

Tradition ascribes this hymn to a mythical author, to one Bhiṣaj Ātharvaṇa, that is, to the Vedic prototype of the doctor (bhiṣaj)—magician (ātharvaṇa), the founder and embodiment of the magic art of healing.

Again all existing herbs are invoked to lend aid: "the many, wise a hundred-wise" (18) with "hundred-and-seven virtues" (1) and "of hundred potencies" (2), those within reach, and those out of reach of the healing magician (21).

All the forces of the vegetable kingdom, again, are blended into a powerful arcanum (21) to conquer "Consumption" (11-13), by which term it is not quite certain what is meant. Neither is the patent decline of the patient's life-strength clearly diagnosed with regard to its origin. It may be

"god-sent" (16) as a visitation for the sinful conduct of the patient, perhaps by Varuṇa (16); or it may foreshadow the approach of King Death, the all-powerful "Tamer" (16), who catches the life-spirit with his noose and drags it away; it may be caused by some demon (6) or through the imprecation (16) of someone "who seeks to do us harm" (23). In any case, the efficacy of the divine herbs, when duly recognized, brought together, and put to use, is beyond question. They are, again, propitiated by extolling their origin, kinship and virtues (1, 3, 5, 9, 17, 22). Their friendly, "motherly" character is insisted upon to preclude any harmful reactions due to their ambivalent nature (2, 4); they are appeased for being disturbed and uprooted (20), and implored to protect the inhabitants and the animals of the household and of the village (20).

An arcanum is built up of their combined forces (14, 15, 19, 21), which is supposed to cure all kinds of disease (16), and to ferry the sick man "over to the side of safety," out of the reach of Death (3, 16).

A particular and rather striking element of this hymn is its insisting on the close relation between

the expected healing effect of the treatment and the doctor's "rich fee" (8), consisting of "horse, cow, clothes" (4). The magic procedure assures the patient's recovery, inasmuch as the latter bears in mind the ample reward that he owes to the healing magician. The fee the physician expects is regarded as reciprocal to the effectiveness of the treatment, and even as guaranteeing it. The considerable size of the expected salary is "rubbed in." Such a business-like aspect of the relation between doctor and patient has its therapeutical value. The emphasis on the costliness of the treatment is intended to reflect the high capacity of the medical authority called upon to treat the case, and the efficacy of the means at his disposal as well. This is expected to exert a salutary psychological effect through its appeal to the "sacred egotism" of the ailing individual, his monetary instinct; it is not intended as a distracting reminder of the bill to be footed, but is meant to act as an incentive, appealing to the patient's instinct for cooperation and recovery. High fees invariably inspire confidence in the practitioner's skill and the efficacy of the medical tradition; they stimulate the lingering, or malingering, patient to mobilize whatever hid-

den energies are within him, to pass the crisis and get over his illness.

For the same purpose the secret knowledge of the medical magician is emphasized: he knows what council the divine herbs hold among themselves and how they pledge their assistance to the Brahmin doctor (22), the authentic healer (6), before their king Soma. An important asset of the Brahmin magician in dealing with these disease-demons is his ability to league himself with the divine healing forces. The hymn points out this privileged position of his by referring to the Lord of Magic Spells (Bṛhaspati, Brahmaṇaspati) as his powerful ally (15, 19). Bṛhaspati is the foremost of the Aṅgirases, the ancestors of the oldest priest-families; he attained divine rank through acting as house-priest and arch-magician to Indra and the gods. He is, by very name, the "master" (pati) of the innermost soul-force (bṛh, brahman) which works magic through communion with the divine.

The effective steps the doctor takes to dispel consumption from the patient's body are reflected in detail in the course of the hymn.

First, he concentrates on the divine powers of the herbs, and, praising their origin and virtues, he

convokes them, urging them thither (1-7). The mere physical presence of the vegetable drug-stuffs, combined into the arcanum to be administered, is evidently far from sufficient to secure the effect desired. The spiritual energy of the herbs, their good will, cooperation, and eagerness to help must be secured. Their personalities, like those of human beings, must be activated in order to render their cooperation effective.

Next, they are enjoined to go to work, presumably through the arcanum administered as a potion (8), and the actual working of their qualities and strength is stated and described (9). Then, the definite success of this internal treatment is emphatically asserted: "the herbs have driven away all defects of the body whatever." Herewith the internal treatment apparently reaches its culmination.

The next stanzas seem to reflect a parallel external treatment. The same arcanum, presumably, is poured all over the limbs and joints of the patient's body; this ablution, again, is made with the intention of transferring the disease into the birds tied under the patient's bedstead; there follows an appeal to the divine power of the wind,

supposed, here as elsewhere, to act as the universal "cleanser" or "purifier" (pavana), and to carry off the disease, far away, "beyond the navigable streams" (Ath.-Veda VIII, 7, 15).

Among the remaining stanzas, made up of variations on the principal themes of this kind of magic treatment, there appears a prayer (16), "may they deliver me . . . ," evidently meant to be recited by the patient himself, repeating it after the physician; or it may have been intended for the doctor to recite it, assuming the rôle of the ailing person and speaking in his stead.

The structure of the charm and the elements of which it is composed convey the impression that Vedic medical wisdom, uncertain of the character of the disease and not at all sure of the efficacy of the separate means at its disposal, is inclined to combine every available approach into a single strong weapon to overcome the demon disease; because of its uncertain origin and the manifold aspects of its strength, this demonic force seems too elusive and powerful to be conquered by half-measures.

The principal diseases which occur in Vedic medical texts, more or less clearly discernible as to

their nature and relation to those mentioned in subsequent classic tradition, are: fever (takman), diarrhoea (āsrāva), cough (kāsa), consumption (balāsa, yakṣma), dropsy (jalodara), sores (apacit), abscess (vidradha), tumor (akṣata), leprosy and skin-diseases (kilāsa), inherited diseases (kṣetriya) and "seizures" by various demons.

Nineteen gods, altogether, are invoked for help against diseases:[4] those visiting upon man "god-sent" diseases in retribution for their sins (Varuṇa) are besought to remove the curse; Śiva, who sends fever, is implored to dispel it. The twin Horsemen (Aśvin), invoked in every kind of distress, bear the traits of divine physicians.

The most significant tribute which could possibly be bestowed on Hindu medicine was conferred on it in post-Vedic times by the founder of Buddhism.

The Buddha, in expounding his doctrine of salvation, modeled it after the attitude of the Hindu physician toward the task of healing. The Enlightened One, foremost among India's heretics, the boldest genius among her thinkers, departed on many vital points from the hallowed authority

of Brahmin tradition and practice, but was justified by the history of subsequent millenniums; his universal message was the only one to exert a fundamental influence on Far Eastern civilizations far beyond the borders of India and to effect so widespread and lasting an impact on human thought. Attaining to the height of a world-religion, Buddhism, in its elementary tenets, carried far and wide the fundamental concept of Hindu medicine with respect to the fourfold procedure of the physician confronted with a case.

The so-called Four Noble Truths of Buddhism correspond exactly to the four successive problems which the Hindu doctor is taught to face in treating a patient. The Indian physician, when called upon to examine a patient, is instructed to ask himself four questions: three in order to reach a proper diagnosis, and one inquiring into the proper therapy of the case. First of all, are the complaints of the patient based on some real suffering; has he a real disease or is he only seemingly ill? If the answer is that he is ill, the physician proceeds to inquire into the particular nature of the sickness, answering the second question: with what kind of suffering is the patient afflicted and what is its

origin? The third step, completing the diagnosis, is to decide whether the disease can be cured or not. If not, the doctor is supposed to withdraw. He leaves the patient to his relatives and his house-priest; at this point the priest may have recourse to the superior wisdom of magic procedure in an attempt to exorcise or propitiate the superhuman forces that may have seized upon the patient, baffling medical skill; or the priest and the relatives may dispense to the soul, definitely bound westward, the blessings of sacramental offices that it requires for the next life. But if the third question is answered in the affirmative and the disease seems curable, then the doctor will ask himself the fourth and last question: what kind of treatment is indicated for this particular ailment?

The founder of Buddhism, in the fifth century B. C., adopted a parallel procedure. Perceiving that mankind and the universe are steeped, through the very process of life, in suffering without beginning or end, he did not attempt to deal with it by assuming the traditional attitude of the priestly teacher (Guru); instead, he adopted the standpoint of a medical man on the spiritual plane, putting the selfsame four questions and answering them

affirmatively. This novel procedure of the Buddha was later followed in the classic system of Hindu yoga.[5]

First of all, the Buddha states that universal suffering is real. Next, he defines suffering as caused by a deep-rooted ignorance concerning the essential laws of the process of life and consciousness, an ignorance which has its roots in the blinding effect of the universal desire to be, to grow and to enjoy, and in the naive clinging to the ego. His Third Noble Truth diagnoses this suffering through ignorance, though it affects even the highest divinities, as curable. The Fourth Truth points out, as the only proper therapy for establishing the state of unlimited well-being, the Buddhist way of ascetic practice which leads toward enlightenment (bodhi) and extinction (nirvāṇa).

This characteristic attitude of the Enlightened One, later found representation, in Mahāyāna Buddhism, in the figure of the transcendental Buddha Bhaiṣajyaguru, the "Master of Medicaments." Among the allegorical representations of the spiritual saviors, expressing the virtues of the doctrine, the Buddha is here shown acting as a

spiritual healer of all beings, from the gods on high down to animals and inmates of purgatories.

The tutelary divinity of classic medical wisdom is the god Dhanvantari. He does not figure in the Vedic pantheon of the Aryan immigrants; apparently he is an inheritance from aboriginal Indian antiquity.

Dhanvantari belongs to the series of "fourteen jewels" (ratna), i. e. precious symbols and figures which, one after the other, make their appearance in the course of an important mythical process. At the beginning of time, when the gods and the titans, in their constant rivalry for supremacy and world domination, reached a temporary truce, they combined their antagonistic energies to churn the Milky Ocean, and extracted from the universal life-fluid its "butter," the elixir of immortality (amṛta). First there emerged other representations of the divine life-force: the goddess of life, beauty, prosperity and riches, Śrī-Lakṣmī; the rain-bestowing elephant of Indra; the horse of the sun-god; Viṣṇu's breast-jewel, Kaustubha; the kingly parasol of the water-god Varuṇa; and the divine earrings trickling the water of life. Finally, from the liquid

depths of primeval cosmic life-substance, Dhanvantari arose, carrying the elixir of immortality in a milk-white bowl.

As the embodiment of medical wisdom, Dhanvantari is allied with the divine maintainer of the universe, Viṣṇu, who has been directing the laborious process of churning the Milky Ocean; it is he who finally helps the gods to secure the precious beverage. Dhanvantari is regarded as a part (kalā) of Viṣṇu himself in his supreme manifestation, Narāyaṇa, the divine substance of the universe in the form of the primal waters of life (nara) which gave birth to the organism of the world. Moreover, in popular Hindu lore, he is a pupil of the fair-winged sun-bird Garuḍa, who is the son of Mother Heaven (Vinatā), the vehicle of Viṣṇu, and the celestial one among Viṣṇu's animal manifestations.

But Dhanvantari is also reckoned as a disciple of Śiva, the conqueror of King Death, the "Tamer" (Yamāntaka), and lord of destructive forces, who is antagonistic to Viṣṇu, the maintainer. Through this twofold discipleship, Dhanvantari combines, as it were, the two main elements of Hindu medicine: the wisdom which increases life-

strength and maintains life-length to its full extent (āyurveda), and the wisdom of cures and remedies (bhaiṣajya) for diseases and demons.

Dhanvantari plays no remarkable rôle in that unending strife between gods and titans, which, in its succession of dramatic events, triumphs and downfalls, forms the mythical history of the universe. Yet there is a significant tale in popular tradition (purāṇa), which tells how Dhanvantari fought the destructive power of venomous snakes and finally propitiated it by bowing to its might. This episode [6] shows the religious and magic background against which Hindu medicine should be viewed; for it shares in the common beliefs, in spite of the growing rational tendencies of its classic texts.

One time, we are told, when Dhanvantari with a thousand pupils was wandering to Mount Kailāsa in the Himālayas, an abode of Śiva, he encountered a giant serpent. The venomous monster, of colossal proportions, showed its tongue and assailed him as if to devour him. But Dhanvantari simply laughed at it. As a pupil of the sun-bird Garuḍa, the arch-enemy of snakes, who absorbs the serpent-genii or life-spirits of the terrestrial waters by

means of his celestial solar heat, Dhanvantari knew himself to be possessed of the magic power to conquer snakes.

One haughty pupil of Dhanvantari, encouraged by the master's fearless attitude, disdainfully seized the proud serpent, and, by means of incantations, subdued it and extracted its poison. He even seized the priceless jewel which serpents are supposed to be carrying about in their heads; he rolled it in his hand and threw it away. The giant serpent, paralyzed, lay there as if destitute of life.

Its companions fled and turned to the mighty snake-king Vāsuki, who, when he heard of this outrage, dispatched against Dhanvantari and his pupils certain other famous snake-princes with a countless host of poisonous snakes. The pupils, by the breath of the advancing snakes, were struck lifeless. Dhanvantari, however, centering his mind on his spiritual teacher Garuḍa, by the power of incantations, rained the elixir of immortality on his pupils and restored their bodies to life. The serpents, in turn, he paralyzed by magic spells, so that not one was left to report to their lord.

Vāsuki, however, through his far-reaching divine insight, became aware of this discomfiture and

implored the goddess Manasā for help. Manasā is the supreme female representation of serpent-power, the divine mother of serpents. She is regarded as the sister of the cosmic snake "Endless" (Ananta, Śeṣa), the cosmic waters which in their depths support the universe.

Manasā is a jealous divinity; she punishes disrespect and avenges any injury to a serpent. Heeding the prayer of Vāsuki, incensed and self-assured, she set forth to avenge the humiliation the serpent realm had suffered: "I shall go to the battle and slay the enemy. Who can preserve him whom I would destroy? If even the highest gods join battle, I shall conquer."

The disastrous force of venomous snakes, against whose poisonous effect no magic, no medical wisdom avails, is explained as due to the serpents' superior wisdom. Manasā boasts that she received her paralyzing magic and deadly power from the lord Ananta himself, who acted as her spiritual teacher and bestowed upon her a most wonderful charm,—a charm sacred to Narāyaṇa, the primeval manifestation of Viṣṇu; for Ananta is another embodiment of Viṣṇu's divine essence. She boasts that she is able to reduce the universe to

ashes at will, and create it again. She vaunts herself to be a pupil of Śiva and disparages Dhanvantari for not being a pupil of Śiva himself: her enemy became possessed of his part of the secret wisdom of the lord of destruction only through the mediation of Garuḍa, who, in turn, had studied but for a short season with Śiva. Manasā herself, however, had been tutored for an extensive time by the lord of destructive powers; and, in days of yore, she had received from him vast wisdom.

The rôle of the spiritual teacher, imparting charms and magic as the most precious elements of the art of protective healing, is emphasized by this popular tale. And the irresistible strength of the snake-poison is explained as due to the fact that the Snake Mother's contact with the secrets of the realm of destructive powers is more intimate than that of the divine master of healing, who obtained his science of protective charms and cures through the mediation of the life-maintaining sphere.

Upon reaching the battle-scene the Mother of Serpents revived with a single glance the paralyzed snakes and smote Dhanvantari's pupils, so that not

even the Master of Healing could restore them to consciousness by his magic charm. Then there ensued between the two a fierce duel with magic weapons such as befit divine powers. Manasā attacked the divine physician with missiles flaming with venom. But the charmed fiery lotus which she threw at him, Dhanvantari by his breath reduced to ashes; the mustard-seed, endowed with magic potency, which she hurled against him, he countered with a handful of dust. Her magic iron spear he cut in twain with a spear bestowed upon him by Viṣṇu. Against a magic noose of a hundred thousand serpents, the god-healer invoked, by mental concentration, Garuḍa, who came hurrying and devoured eagerly his favorite prey. From a ladle full of ashes, the gift of Śiva, which the goddess threw, Garuḍa shielded his pupil with his back, scattering the ashes with the wind of his wings. But when the infuriated goddess resorted to her most powerful weapon, a flaming spear given her by Śiva, radiant as a hundred suns and blazing like the conflagration of the universe at its dissolution, Brahmā and Śiva, the highest gods, hastened to the battlefield to intervene, lest Dhanvantari perish and Garuḍa lose his prestige.

Manasā, joyfully, bowed to the almighty twain. Brahmā and Śiva advised Dhanvantari to propitiate the fierce goddess with offerings, prayer and meditation. This he did, humbling himself. Thus by praising her as the source of all wisdom and the gracious protectress of her devotees, he became reconciled with the wrathful divinity. Appeasing her, he evoked her benevolent aspect with its auspicious emblems, and gained her favor. By his devotional practice he established the pattern for propitiating the fierce force of destruction by acknowledging its irresistible strength. Furthermore, his auspicious vision of the goddess (dhyāna) provided the form in which Manasā is to be visualized in meditation and represented in images for worship, to avert the peril of poisonous snakes.

This mythical tale illustrates the strength of Hindu medical skill in its attempt to deal with the constant danger of snake bite. It also stresses the limits of the art of healing and its close interrelation with magic and devotional practice.

Dhanvantari, in the classic encyclopedia of Hindu medicine by Suśruta, figures as the divine authority who reveals medical wisdom to mankind.

The god-healer became incarnate among men as Divodāsa, a mythical king of the holy city of Benares, "foremost in ascetic fervor and moral virtues" (Su. I, 1; V, 1; VI, 66).

The account of the manner in which this revelation became available to men begins with the solemn errand of a group of holy seers led by Suśruta, who was the son of the famous Vedic priest and singer, Viśvāmitra, one of the deified Seven Old Sages. They resorted to the hermitage of Divodāsa and, respectfully addressing him, spake:

"We behold mankind smitten by many pains and hurts in illnesses of their bodies and minds, we see them cast down by sickness coming to them from outside or originating from their inner being. Though they are protected by divine patrons, they cry out as if they had none. This troubles us, and we would hear for the sake of all creatures thy sacred Doctrine of Longevity (āyurveda). Instruct us, that we may learn to heal the illnesses of those who desire well-being; and that we may prolong our own lives. On this knowledge rests all weal in this world and in the next. For this we have approached the Venerable One as his pupils."

The holy Dhanvantari answered them: "Wel-

come my children; ye all, without further examination, are worthy to receive the teaching."

Then, Dhanvantari taught them the sacred knowledge of longevity which forms part of the fourth Veda, the Atharva-Veda, as it was laid down by Brahmā, the Self-born God, before he brought forth the universe and all creatures. His teaching was contained in a thousand lessons and a hundred thousand double verses. Brahmā, after having created this wisdom, bethought himself of the brief span of man's life and of the limitations of the human mind; whereupon he epitomized it in eight books.

This legendary setting, a familiar characteristic of Hindu traditional wisdom, is intended to afford to Suśruta's compilation of medical knowledge a suitable background through stressing the authority of its antiquity and divine origin. Except for the final part, which was added still later, Suśruta's compilation actually reached its present form in the fourth century A. D. But through the legendary framework it is presented as deriving directly from a mythical early period of the Vedic age, in which immortal sages and their sons were enabled through superior spiritual perfection to receive the

revelations of the gods. Thus was man apprised of what he needs to know to preserve health and long life, in spite of the inevitable decline of his virtues with the gradual deterioration of the substance of the universe in the course of its four ages. The claim to the incontestable authority of age and origin provides no historical clue to the actual rise of classic medicine.

Another classic of Hindu medicine, however, Caraka's compilation, which belongs to the first century A. D., in its legendary setting offers some material on the lineage of medical tradition which is substantiated by other literature. According to Caraka (I, 1), the " Wisdom of Long Life " came from the hand of the God Creator Brahmā who revealed it in its entirety to the demiurgic god Prajāpati, the " Lord of the Creatures." From him it went to the Aśvins, the divine " Twin Horsemen," the helpers and healers among the Vedic gods. They passed it on to Indra, the King of Gods, and from him mankind received the divine wisdom.

When moral perfection and saintliness, as they prevailed in the ideal beginnings of time, began to decrease in the course of ages, disease made its

appearance; thus the span of life was shortened and the fulfilment of religious duties hindered, along with that of vows, austerities and the pursuit of enlightening sanctity. Then, out of compassion for all beings, holy seers gathered on an auspicious slope of the Himālayas and took to meditation on the problem: " By what means can disease be checked, since freedom from disease is the elementary requirement for all religious, secular, and spiritual pursuits? " With the inner eye of intuition they beheld Indra and realized, " the King of the Gods will reveal to us the means of checking disease, but who shall proceed to his celestial mansions and ask him? " One among them, the holy Bharadvāja, cried out, " Let it be I ! "

He proceeded to Indra's heavenly abode and the King of Gods revealed to him the Wisdom of Long Life, " condensed in a few words." The holy seer grasped the " boundless and shoreless, eternal and auspicious " science, which is the last and best resort for the hale and the sick, in the form of three aphorisms containing the knowledge of the causes (hetu) and the symptoms (liṅga) of disease, and of the remedies (auṣadha) thereof.

Through this wisdom Bharadvāja gained un-

limited life, and so did the holy seers to whom he proclaimed it. With the "eye of intuitive knowledge," they duly beheld similarities and dissimilarities, qualities, individual substances, and their specific active properties, as well as the possible combinations of their virtues and the inseparable inherence of one item in another.

Thus the "condensed" wisdom unfolded, and one of the saints, Punarvasu Ātreya (i. e. the descendant of Atri), out of compassionate love for all beings, taught the "Wisdom of Long Life" to six disciples. Agniveśa, Bhela (or Bheḍa), Jātukarṇa, Parāśara, Hārīta and Kṣārapāṇi received this oral instruction. There was no difference in the saint's teaching, but a diversity of intelligence among his pupils, therefore Agniveśa was the first to compile an encyclopedic treatise. The other five disciples also wrote treatises and, when the six works were recited before an assembly of seers headed by Punarvasu, they agreed that all the books had been duly compiled.

This legendary account refers to some actual facts in the history of Hindu medicine. Two of the six renderings of Punarvasu Ātreya's teaching given by his six pupils are actually extant: the

compilation of Bhela ("Bhelasaṁhitā") and Agniveśa's encyclopedic treatise which finally took the shape of Caraka's compilation ("Caraka-saṁhitā").

The Bhelasaṁhitā, which for a long while was believed lost, has been retrieved in a neglected South-Indian manuscript.[7] Though in a regrettably poor state of preservation and abounding in corrupt readings, it bears witness to the same early tradition as does the well-preserved Carakasaṁhitā. Both reflect the teaching of the Ātreya school from which they stem. The Bhelasaṁhitā makes use of the same subdivision of medical learning under eight major headings which forms the structure of Caraka's compilation.

The Carakasaṁhitā, on the other hand, through the opening formulae of its chapters, proclaims its contents as taught throughout by the Venerable Ātreya, the teacher of all six branches enumerated in the legendary account; in the colophons of its chapters its development is ascribed to Agniveśa, the first of the six disciples to turn out an encyclopedic treatise based on Ātreya's oral instructions.

Since the renderings by the four remaining pupils of Ātreya seem to have been lost perma-

nently, while the Bhelasaṁhitā, taken by itself, is only a poor and confused source for the earlier period of classic Hindu medicine, the Caraka-saṁhitā stands as the finest document of the creative period of the last centuries before the beginning of our era, both, in regard to the extent of its contents and to its state of preservation.

Caraka, to whom it is attributed, is generally believed to be identical with the court-physician of the king Kaniṣka of Peshawar in the first century A. D. Hindu tradition has enhanced the stature of this classic authority on medical knowledge by looking upon Caraka as an incarnation of Ananta-Śeṣa, the giant cosmic serpent who supports the universe. Śeṣa is the embodiment of the primeval creative waters out of which the universe took its origin; it is the life-carrying substance of the universal organism. In the beginning, the lotus-flower of the universe sprouted forth from the liquid element; what was "left over" of these waters when the world and all creatures emerged out of them through transmutation of their divine substance, remained at the bottom and formed "Śeṣa," that is, "the residue, the rest." The cosmic serpent and the primal waters are the elementary

aspect of the Supreme Being, Viṣṇu, who periodically, for the duration of a world-cycle, transforms part of his transcendent essence into the universe and its creatures. Thus it is the divine universal life-substance itself, which through Caraka's teachings discloses the secret of life and the rules of living, pointing out the ways by which health and long life may be ensured and disease and old age warded off.

Additional light is thrown upon the growth of the medical knowledge which eventually became embodied in Caraka's compilation by the oldest existing medical manuscript, the "Bower Manuscript."[8]

This precious document is named after the British Lieutenant, A. Bower, who discovered it in 1890, in a Buddhist monument at Kutchā, Chinese Turkestan. On palaeographic evidence it is assigned to the second half of the fourth century A. D.; its contents, however, should go back to a period some centuries earlier than is warranted by the palaeographic character of the manuscript in which they are preserved.

Its text consists of a series of medical and pharmacological monographs (kalpa) and treatises

(tantra). In type they are closely akin to parallel chapters in Caraka's encyclopedia. There are monographs on the pharmaceutic value of various drug-stuffs, such as Chebulic Myrobalan (harītakī), bitumen (śilājatu); prescriptions (yoga) of pepper (pippali) for the relief of morbid secretion of urine (pramehapraśamana); of Bombax Malabarica (picchā-vasti) used as an enema; prescriptions for tonics, aphrodisiacs and so forth.

The text of these formulae is practically identical with parallel passages in Caraka's compilation, but no reference is made to Caraka. One might presume that the compilation preserved in the Bower Manuscript represents another tradition, parallel to Caraka's and Bhela's classic tradition, through which part of the common pre-classic stock of teaching, carried on by the school of Ātreya, was handed down.

The compilatory character of Caraka's encyclopedia is evident. It consists of an enormous mass of chapters ("lessons"), which overlap in content, thus bearing witness to the fact that its classic rendering grew out of a vast amount of floating tradition, consisting of monographs, single pre-

scriptions and specialized treatises, transmitted separately and in groups.

In this respect, medical tradition at Caraka's period somehow resembles the sacred tradition of Vedic theology, where the compilations (saṁhitā) of sacerdotal lore now extant gradually took shape by merging material formerly the possession of individual Brahmin families with the appurtenance of separate rituals dealing with one divine power or another. Compilation in both cases marks the comparatively advanced form which characterizes the final stage of a creative period: the rich inheritance from preceding generations is carefully gathered, sifted and brought into a definite, comprehensive form. There is a movement toward systematization; but in both cases, as elsewhere in Indian tradition, it is checked by the faithful respect felt for the time-hallowed achievements of the forefathers.

The reverent tendency to rewrite faithfully what had been handed down and given authoritative form by the teachers of old made any systematic account impossible. But the lack of clarity in arrangement, an unavoidable shortcoming of early medical knowledge, is amply compensated by rich-

ness of detail and of general ideas; later authorities lack these virtues. In this respect Caraka is the most rewarding author among the Hindu classics of medicine; he exceeds Suśruta and Vāgbhaṭa by far in regard to the philosophic background of medicine and its interrelation with religious thought and the various aspects of Hindu spiritual life and ideals.

The "Science of Longevity" (āyurveda), as it evolved in the Ātreya school of Brahmin doctors and was recorded through Caraka's compilation, contains no chapter on surgery. This branch of medical skill evidently did not become part of the regular equipment of Hindu medical men; not, at any rate, before the first century A. D.

Surgery as a medical skill must, however, be of a venerable age. It is called "Arrow" (śalya), for the reason that the arrow of the enemy, from primitive times, has been regarded as the most common and dangerous of foreign objects causing wounds and requiring surgical treatment. The arrow, not the sword or the spear, was the most common weapon in Hindu warfare of the Vedic period, the epic age of feudal chivalry, as well as of subsequent centuries.

A primitive sort of surgery is as old as warfare; the man who knows how to inflict wounds with his weapons must also know how to treat them; and he needs somebody to assist him when he is wounded by similar weapons in the hands of the enemy. The surgeon Machaon, side by side with the priest and soothsayer Kalchas, is an indispensable figure on the heroic stage which Homer sets for the siege of Troy. There is literary evidence that surgery existed before Caraka's time, but it seems to have been a special discipline, distinct from the science of health and longevity, and had not yet been merged into the encyclopedic tradition represented by Caraka's compilation.

Surgery must have been of old standing also in Hindu veterinary tradition. Among the animal patients of Hindu medicine, elephants are especially cared for. They are considered a very valuable part of the property of kings, indispensable for state ceremony, as the proper mount of monarchs; like the king of the gods, Indra, kings must ride on elephants. They are indispensable, again, for magical purposes; their presence in the king's household is believed to provide for abundant rainfall, fertility of the country and the welfare of the realm.

Moreover, they are the most efficient part of the king's army, dealing decisive blows on the battle-field, and forming a swift vanguard for sudden assaults through difficult country. Besides some treatises on horse-medicine,[9] Hindu veterinary tradition possesses a monumental compilation of elephant medicine, the "Hasty-āyurveda," the "Sacred Wisdom on the Longevity of Elephants."[10] It contains more than seven thousand six hundred stanzas and forty-six chapters in prose which form four books, the third dealing at length with elephant surgery. As a companion-at-arms, the precious animal received the same care as the hero, the soldier.

Associated primarily with warfare, surgery for a long while remained a special branch, distinct from the civil science of longevity. It needed a particular effort, a stroke of genius, to break down the barriers of traditional specialization, and to merge surgery with the science of macrobiotics. This step is accomplished through the work of Suśruta. In Suśruta's encyclopedia surgery has achieved a leading position as an indispensable element of general medical training. And one may say that his emphatic statement of its incompara-

ble value for a correct understanding of anatomy reflects a triumph in the evolution of Hindu medicine. A fruitful union of what traditionalism had formerly held apart is here effected.

The compilations of Hindu medical lore, in styling themselves revelations of divine wisdom, emphasize their encyclopedic character; because of this fact, they are inclined toward a self-sustaining conservatism. The broader view, which enabled the author of the Suśruta-saṁhitā to incorporate surgery and to assign to it an important place in his compilation, is evidenced by his comment that there are other branches of knowledge, besides regular medicine, which may help the physician to complete his learning; moreover, he advises the pupil who aims at mastery to learn from various masters. Otherwise, through strict adherence to the single method pointed out by his first teacher, he might fail to acquire the broader foundations of a thorough command of medical knowledge.

There is nothing to indicate that surgery was relegated to an inferior place, though it had been handed down as a tradition separate from that of the science of longevity before Suśruta; the contrary is true. Besides, Suśruta's classic innova-

tion, enlivening traditionalism, spared India a dark age of surgery similar to that which prevailed in Western medicine when surgery, under the auspices of Galenism, fell into such neglect that surgeons were no longer ranked as physicians.

With Suśruta the literary tradition of classic Hindu medicine reaches a new style which sets the model for the next classic author, Vāgbhaṭa (8th century A. D.), and the later textbooks. Caraka's compilation is the storehouse for the rich harvest gathered from the preceding creative centuries in form of monographs, treatises, and lessons. In content these are independent to a large extent and tend to repetition, increasing the bulk of the available information and offering, in incomparable detail, a valuable source of insight into the speculative implications of medical thought. Suśruta, on the other hand, aims at some clarification of the vast matter through condensation and systematization.

The primitive, old-fashioned way of dealing one at a time with diseases, drugs and herbs, in separate monographs, exhausting the matter under every aspect, is here abandoned to a large extent. The subject-matter is split up: pathology and

therapy are more strictly subdivided and treated under separate headings. An identical subdivision is actually used by Caraka; but due to his broader, more leisurely and conservative style, this organization of material is not insisted upon to the same extent and is not adhered to strictly in practice. In the main sections of Suśruta's text it is carried through most rigidly.[11]

The succinct and sober style of Suśruta and subsequent authors was dictated by the necessity to reduce the vast amount of information that had accrued, to a handy, manageable size; the need was felt for a classic handbook which would present this knowledge in a condensed form suitable for oral tradition and for memorizing.

The sideline of veterinary medicine, the "Veda on the Long Life of Elephants," offers a faithful example of the more primitive manner of handling such subject-matter, preferably through monographs; these take up first the mythical origin of diseases and drugs, interpret their meaningful etymology, proceed to their aetiology and symptoms, and close with treatments and recipes. Thus the entire subject is covered after the traditional pattern of the four problems and questions which

inspired the Buddha to assume in his teaching the attitude of the medical man.

Caraka, Suśruta and Vāgbhaṭa form the famous "Triad of the Ancients" (vṛddha-trayī), and are considered the three great medical authorities of three subsequent ages (yuga) of the present cycle of the universe.

Among later authors on medicine, the Brahmin Mādhavācārya achieved an outstanding reputation, dealing exclusively and exhaustively with the diagnosis of diseases. He was a brother of the famous Brahmin scholar Sāyaṇa who wrote the classic commentaries on the stanzas of the Ṛgveda and Atharva-Veda; through his interpretation were laid the foundations for the scholarly understanding of the oldest documents of Hindu-Aryan civilization. Mādhavācārya himself acted as Prime Minister to King Vīra Bukka of Vijayanagara, South India, in the 12th century A. D. A popular stanza assigns to him a rank equal to that of the "Triad of the Ancients." Mādhavācārya is considered the foremost authority on diagnosis (nidāna); while Vāgbhaṭa is unrivalled in the principles of medicine (sūtra), Suśruta and Caraka are given first rank in the knowledge of surgery

and anatomy (śarīra), and of therapeutics (cikitsaka), respectively.[12]

The medical encyclopedia of Bhavamiśra, who flourished about 1550 A. D. in Northwestern India, summarizes the teachings of previous writers. He is the first to deal with syphilis (phiraṅga roga), the "Portuguese disease," describing its three stages.

Under the patronage of Khalif Almansur in the 7th century A. D. the compilations of Caraka and Suśruta were translated into Arabic; Caraka's name occurs in the Latin translations of Avicenna, Rhazes, and Serapion. In addition, some sixteen other works on Hindu medicine were known to the Arabs at the time of the Muslim historian, Fihrist (800 A. D.).

In the first half of the 17th century a learned Brahmin wrote "Jīvānanda," "The Bliss of the Life-monad or Soul (jīva)," a didactic play on medicine which affords a popular summary of the main tenets of this science, and indicates its relation to the pursuit of the ultimate goal of Hindu philosophy and religious life. The author, Ānandarāyamakhī, was at once chancellor, house-priest,

spiritual adviser and court-poet to King Śarabha or Śrīśāha of Tanjore in South India.

The play, in seven acts, is an allegory on the order of Kṛṣṇamiśra's more famous play "The Rise of the Moon of Enlightenment" (Prabodhacandrodaya), though the latter, an excellent poem, is of superior quality. "Jīvānanda" is a late specimen of a type of dramatic allegory, whose early existence is attested by the most ancient fragments of Indian drama extant. They date from the beginning of our era and have come to light among Buddhist material found in Central Asia (Chinese Turkestan). Ānandarāyamakhī was particularly fond of this kind of allegorical poetry; another one of his didactic plays is "The Wedding of Wisdom" (Vidyāpariṇaya).[13]

Following the traditional pattern, the "Jīvānanda" arrays two battle fronts with their opposing kings, and describes their encounters and vicissitudes, until the forces of evil finally meet defeat, —thanks to the intervention of the highest divine powers. Both parties in this chess game use every device of political cunning and of the art of warfare; the medical lesson of the play is seasoned

with the sophisticated art of Hindu politics and strategy.

The kingdom of disease under its king, Consumption (yakṣman), assails the royal capital of the body. The Life-monad (jīva), king of the body, is to be driven from his realm.

The commander-in-chief of the army of diseases, Jaundice (pāṇḍu), heir to the throne, assembles the diseases of every sort for a council of war. The sixty-four diseases of the eye, the eighteen diseases of the nose and ears, the seventy-four diseases of the mouth, and the five diseases of the heart gather round him. These, however, form but a small part of the vast array.

Goitre (galagaṇḍa), as master of ceremonies, opens the debate. Leprosy (kuṣṭha) and Insanity (unmāda) are foremost in making confident speeches. Boils and Ulcers (vraṇa) show bold assurance, and so do the Piles (arśobheda) and Urinary Diseases (prameha, including diabetes). The group of Stones and Stranguries (aśmarī) voice their loyalty. The host of Dysenteries (atisāra), vaunting their disastrous impact, get full credit for their efficacy in breaking through the defences of the enemy's body, while the Enlarge-

ments of the Spleen (gulmaplīhan) boast of their malignant effects, once they have gained access to the enemy's fortress.

Meanwhile a spy, Root of the Ear (karṇamūla), who has stolen into the enemy's capital, disguised as a mendicant ascetic, has returned from King Jīva's realm, which is already besieged by the army of diseases. He brings news that King Jīva has retired to the innermost fortress of the body, having entered the Lotus-Citadel (puṇḍarīka-pura) of the heart through the gate of mind (manas). The king's chancellor and political adviser, Intelligence (vijñāna), had advised him to seek this innermost sanctuary and to approach its secluded inhabitant, the Lady Loving Devotion (bhakti). She, through her wholehearted dedication to Śiva, the Highest God, might, by Śiva's grace, be able to help the king to gain the elixir of immortality; this elixir is the very seed of the supreme god, mercury, which cures all diseases.

The attempt of King Jīva to stave off the assault of the army of diseases might be disorganized by a sowing of discord among the officers of his household. Jīva himself, the Life-monad, is described, in conformity with Sāṁkhya psychology, as

wholly inactive and devoid of volition. He depends entirely upon his active and circumspect chancellor, Intelligence (vijñāna or vijñānaśarman), a shrewd Brahmin who represents worldly wisdom and extraverted consciousness.

This chancellor, for the time being, has gained complete ascendancy, having ousted from favor a rival, Spiritual Wisdom (jñāna or jñānaśarman) by name, to whose advice the inactive Jīva had been all too prone to listen. Spiritual Wisdom, by nature unconcerned with worldly affairs and wholly devoted to the pursuit of transcendental truth, had formerly held a strong appeal to the passive character of the king. His influence, should he again become a favorite, might estrange Jīva from Worldly Intelligence, who now practically manages the whole work of defense.

Then again, the chancellor's staff might be disrupted. His three main functionaries, controlling the capital of the body, are the three humors, Wind (vāyu), Bile (pitta), and Phlegm (kapha). Since Bile and Phlegm are lame, they have to be carried by the Wind on their errands through the departments of the organism. Their cooperative harmony is easily upset by wrong diet, or by drugs,

which disturb the proper balance of the humors.

Moreover, there is the officer, Mind (manas), who, under the supervision of Worldly Intelligence, is looking after the welfare of the king. Fickle by nature, he yields easily to the distractions constantly offered him by the five senses. Indeed, the chances look fairly bright for the conquest of the realm of the body by the realm of diseases and for the banishment of the king, Life-monad, from his territory.

Meanwhile, in the innermost sanctuary of the lotus-citadel, King Jīva has met Lady Loving Devotion, and together they have offered worship to Śiva. The queen-consort, Intuitive Intellect (buddhi), constantly on the alert, as befits her privileged position, and stirred with secret jealousy against the favorite, Loving Devotion, had insisted on accompanying the king thither. Returning now from the cell of Lady Devotion, King Jīva praises the energies of mercury and sulphur, which, blended with medicinal herbs, bestow everlasting youth. Śiva himself, compassionate and full of grace, had bestowed upon him these powerful drugs, while he was concentrating in meditation on the Highest Lord.

Soon, however, the king feels remorse for having left, in an almost ungrateful hurry, the presence of Lady Loving Devotion. He had gone forth again to defend his realm, the physical body, against the enemy, instead of devoting himself by continued pious meditation to the beatifying presence of the Godhead. Remembrance (smṛti), however, anticipating his remorse, has betaken herself to Loving Devotion and now leads her together with her friend, Lady Faith (śraddhā), into the presence of the king. Loving Devotion assures him of her unwavering sympathy. She will help him conquer the enemy, and when victory is won she will teach him the fundamental identity of his own nature with the essence of the Godhead. Then, through faithful self-surrender to Śiva, " he will also achieve what his worldly mind desires."

The assault of the host of diseases on King Jīva, now that he has become fortified by divine drugs, can succeed only if the king becomes estranged, on the one hand, from Lady Loving Devotion and, on the other, from his chancellor, Worldly Intelligence. The Six Evil Passions, therefore, have sneaked into his realm to cause disturbance; they are called Lust (kāma), Greed (lobha), Wrath

(krodha), Hypocrisy (dambha), Envy (matsara) and Madness (mada). But Discernment (vicāra), the king's chief of police, detects them in spite of their clever disguise and has them rounded up by his policemen. Envy alone is released to vex the enemy and to tell him that his trick has failed.

However, the enemies are not at a loss in plotting to counter this blow and weaken Jīva's fortress in preparation for a final victorious assault. Unsalutary Diet (apathyatā) is dispatched to seduce King Jīva into indulging himself in an irregular and excessive diet; by so doing, they hope to open a breach through which Bulimia (bhasmāgni) might enter the body and work destruction. Bulimia, Ravenousness, a disordered appetite, is regarded as a morbid increase of the digestive fire (agni) in the upper intestine; there, instead of properly "cooking" the food—that is, digesting it—the excessive heat of the internal fire burns it to ashes (bhasman).

The demoness, Bulimia, finds an eager admirer among King Jīva's suite in the traditional jester of the Hindu stage, the Vidūṣaka, a gluttonous Brahmin of grotesque appearance, who, by virtue of his wits and resourcefulness, enacts the rôle of

the faithful companion of the hero of the play. Moreover, because of his intimacy with Lady Loving Devotion, the king becomes estranged from his chancellor, Worldly Wisdom, and ignores both the latter's advice and the danger threatening his realm.

Underrating the peril which menaces his residence, King Jīva lends a willing ear to his other counsellor, Spiritual Wisdom, while Worldly Intelligence is away on an inspection tour of the defense line. Now, Spiritual Wisdom attends exclusively to the transcendental. He distracts the king's attention from the city of the body and its perils, directing his view to the mystery of his own higher essence, the imperishable divine principle of life which transcends the "mortal coil"; this principle remains, forever and fundamentally, unconcerned with the welfare or destruction of the physical or psychic shells of the individual by which it is enveloped.

It takes utter disaster to bring the king to reason. A terrific assault by the destructive forces, involving all forms of suffering, piercing shell after shell of the organism, breaking through wall after wall, fortification after fortification, finally forces

King Jīva to listen again to the advice of Worldly Intelligence. Then the divine drugs, pharmaceutically prepared and mobilized by the chancellor, arrive upon the battleground; in a pitched battle, man to man, they conquer all the maladies which form the enemy's array.

Broken King Consumption quits the battlefield. Yet he pins a last hope on hurling the group of incurable diseases in a surprise attack against King Jīva's realm. In vain! Worldly Intelligence foresees this peril and, once again, knows how to cope with it.

In this emergency, again, as once before, he advises the king to betake himself to Loving Devotion for the practice of yoga meditation,—to the same Lady Devotion whose influence had once before temporarily alienated from the chancellor the confidence of his sovereign.

To the king, steeped in devotional meditation, Śiva manifests himself to bestow upon him the perfect wisdom of Yoga, the true knowledge of the essence of God and the Self, which removes the king from all sufferings and lifts him beyond all mortal cares; this is the wisdom which constitutes the "Bliss of the Life-monad." It discloses the

beatific identity of God with the innermost core of man's nature, the supra-individual life-monad (jīva).

This monad, the divine life spark or nucleus in all living beings, is beyond all stratifications of the physical matter and the organs, as well as of the psychic faculties and energies. It is an integral part of the divine substance-and-energy which evolves and transforms itself into the universe and its creatures.

Finally, Śiva imparts to king Jīva the teaching: "Do not cease striving after the supreme enlightenment which bestows release from the bondage of the round-of-rebirths; yet, at the same time, honor the wisdom of perfect worldly life and follow it. In giving to each sphere, the secular and the spiritual, its due share, you will achieve both perfect enjoyment of earthly delights and final release. For only in so far as the city of the organism is maintained and firmly defended, can Yoga unfold its magic power to the fullest degree conducive to the plenitude of transcendental bliss."

With every scene this play discloses various chapters of medical lore, summarizing physiology, dietetics, treatment of diseases, and so forth.

Through its broad and graphic descriptions the play teaches the spectator to place his confidence in the vast material of Hindu medicine and its subtle ramifications.

The telling and dramatic display of allegorical figures serves at the same time to assign to medical wisdom its proper place within the wider sphere of pious endeavor, aiming at the highest goal of man. It seeks to coordinate the physician's and the layman's attention to physical well-being with the goals of faith, devotion and yoga practice, the striving toward the beatific experience of the divine in human nature. Health, vigor and longevity, though their possession naturally is of vital interest, do not constitute the self-sufficient ends of medical discipline. They are not ultimate values. They are subordinated to the higher goal of fulfilment on the transcendental plane. They are prerequisites of the everlasting quest, along the paths of pious exercise and austere discipline, to win for man a divine freedom beyond all the needs and bonds of human nature.

This highest pursuit, the realization of man's metaphysical essence—that part of his nature which is supra-individual and indestructible—implies a

supreme indifference toward secular existence; yet, a fair balance is achieved here with regard to the claims of earthly individual existence: Worldly Intelligence and Lady Loving Devotion should share equally in the favor of King Jīva. Only if Jīva pays attention to the disparate advice of each in due turn, will he be able to maintain the realm of the body and, at the same time, achieve success in the highest pursuit.

The moral of this medical allegory is that man must reconcile the antagonistic tendencies of his earthly individual nature and of his divine transcendent essence by satisfying the antithetical claims of both spheres, the natural and the supranatural: the phenomenal realm of body and psyche, and the imperishable essence which forms man's inherent being.

He is enjoined not to disregard earthly well-being in his pursuit of beatitude; but, on the other hand, only insofar as he is able to effect union with the transcendent essence inhabiting his own nature and the universe, will he be able to insure for himself the health and well-being that are proof against every assault from the malignant host of

diseases and evil passions threatening him with ruin.

Such a reconciliation of the two tasks, the earthly and the divine, bringing into harmony secular conduct and spiritual pursuit, is the supreme lesson offered by Hindu medical wisdom.

In teaching man to regard his physical and psychic organism as the perfectly functioning vehicle of the divine life-spark within, medicine works in unison with theology and philosophy. Medicine provides man with a necessary and adequate instrument toward the most highly valued experience, that of the very essence of reality. The primary dignity of medical knowledge centers in its metaphysical aim to provide a sound physical basis for the realization of divine truth; and to help man to attain the status of the enlightened, the sage and the saint, while complying with the demands of secular life. Thus medicine aids man in bringing to maturity the quiescent germ of divine being in his perishable body. Only by caring for his mortal inheritance is man able to arrive at the realization of his highest potentialities.

This idealistic attitude is characteristic of Hindu medicine throughout its evolution, from Vedic

antiquity down to the late middle ages and to the present time; it supplies the ethical background of medical wisdom. "Jīvānanda," therefore, simply reflects faithfully the concept of life which generates the moral and spiritual atmosphere of classic medicine.

Hindu medical lore has been handed down through generations, not by faculties and bodies, colleges or research centers, but through the individual training of pupils by skilled practitioners, masters of their craft.

It is the individual transference, as much as learning and being trained to use learning, that counts in the Hindu educational system. Through the intimate personal contact between master and pupil, living for years together in the master's household, a spell is cast on the impressionable youth. The master infuses, as it were, the secret of his personal proficiency and mastery into him. Some kind of transformation is worked on the very substance of the obedient pupil. He has to be turned into the very double of his master, into a new vessel which may be filled with the wisdom and the skill of the teacher, and with the ancient

spiritual inheritance transmitted through him. It is in this way that true mastership, according to Hindu belief, is handed down through the ages.

In its use of this method, Hindu medicine shows its kinship to all other crafts. All varieties of accomplishment in India conform to the inspiring model set up by Brahmin priestcraft in antiquity, which has as its aim the transformation of an ordinary boy of the privileged priest-caste into an accomplished magician. In attaining any sort of skill, whether that of the silversmith, carpenter, or doctor, there is left some secret of real mastership and success which is not to be attained through textbooks or class-training, but must be taken in through a kind of magical union through which master and pupil become one. This pattern, according to which the mature wizard or medicine-man must train his successor in such an intimate fashion, is fundamental to every phase of spiritual and technical guidance in the Hindu educational system.

Caraka (I, 30) voices the accepted belief that medical science is to be studied by the three Aryan upper classes of Hindu society only, that is, by the so-called "twice-born" (dvija), who are en-

titled to spiritual rebirth under the guidance of a Brahmin teacher versed in Vedic religious lore.

Brahmins should study medicine, not to make it their profession, nor to gain a living, but in order to be able to alleviate the sufferings of all creatures. Members of the feudal aristocracy (kṣattriya) should take it up in the interest of self-preservation; while the third class (vaiśya), townsfolk living by trade and skilled labor, are to learn and practice it to earn a living.

All classes in general, it is taught, should acquire medical knowledge to lay proper foundations for the fulfilment of life's fourfold task: to become prosperous, self-sustaining, financially independent (artha); to fulfil the religious and moral duties (dharma) imposed upon man in the form of debts or obligations to the gods, to his ancestor-spirits and to his fellow creatures; to enjoy unimpaired sensual gratification (kāma); and, last but not least, to accomplish release from the bondage of the round-of-rebirths (mokṣa) through the enlightening realization of man's essential nature. This is brought about by means of ascetic practice, yoga exercises and spiritual guidance.

According to Suśruta, a Hindu adept of the

medical profession should belong to one of the three Aryan upper castes of Hindu society. He should be young and healthy, full of energy, bodily strength and endurance. He should be of a good character, pious, well-mannered and clean. His temper should be calm and self-controlled. Besides, he should be endowed with keen senses. In his diagnosing he will have to rely to a very great extent on the impressions of his senses, since, for him, the vast apparatus of modern physics, chemistry, bacteriology and biology is not available. He will have to taste all sorts of stuff with his tongue, drugs as well as the secretions of the patient, to ascertain their nature.

The studies start with a ceremony of initiation which is similar to the corresponding ritual associated with other crafts. It is peculiarly impressive, if the pupil is of Brahmin extraction. It is made up of elements of the old pre-Aryan forms of worship (pūjā), blended with formulae deriving from the ancient Vedic ritual of the Aryan immigrants.

Flowers, grains, jewels and other gifts (typical implements of pūjā) are offered to the deities; the portraits of Brahmin saints and medical men of

antiquity, constituting the ancestral line of medical tradition, are drawn on the ground to conjure their spiritual presence. This usage, common in Tantric Hinduism, again derives from pre-Aryan tradition.

The climax of the ceremony is reached when the master takes the pupil by the hand and solemnly leads him thrice around the fire-altar. Thus, at the wedding-ceremony, after Vedic-Aryan tradition, the bridegroom leads the bride, invoking the Fire-god to witness their sacred union. The god, presiding over the household, is summoned to witness the inseparable bond which, like the marriage-tie, will unite master and pupil for their lifetime, the pupil assuming the attitude of utter obedience and faithfulness to which the Hindu wife is pledged.[14] Man, in the Brahmin paternal order, represents the creative principle; woman is the "soil," the "field" (kṣetra) into which the seed is cast. She is the reproductive principle. She is there to bring forth a copy or a double of the husband, a son to continue the paternal lineage and to secure uninterrupted offerings to the ancestors. In a similar fashion, the pupil is there to reproduce the substance of the teacher as his *alter ego*, keeping alive

the tradition handed down through his ancestors in medical lore.

The teacher makes clear the meaning of the holy union by administering a solemn admonition to the pupil. First are laid down the rules of the pupil's conduct towards the master; a middle section pledges the teacher, and finally the necessary dedication to the social aspect of the profession is emphasized. This latter part may be compared with the ancient Greek medical oath, the so-called "Oath of Hippocrates." The Hindu document reads as follows:

(1) You must put behind you desire, anger, greed, folly, pride, egotism, jealousy, harshness, calumny, falsehood, sloth and improper conduct.

With short-cut nails, ritually clean and clad in the orange garment (of ascetics who have renounced secular life), you must be pledged to truth, and full of reverence in addressing me.

In your standing, going about, lying down, eating and memorizing what you are taught, you must be intent on my approval and must behave as it suits my pleasure and welfare.

If you behave otherwise, you will have failed in your just duty, and your wisdom will bear you no fruit. It will not shine forth.

(2) If, however, you behave perfectly, while I pro-

fess false views, I shall be guilty of sin, and my knowledge shall bear me no fruit.

(3) (After having finished your studies) with your medicaments you shall assist Brahmins, venerable persons, poor people, women, ascetics, pious people seeking your assistance, widows and orphans and anyone you meet on your errands, as if they were your own relatives. This will be right conduct.

You shall not assist hunters and fowlers (impure by their profession of killing living beings), nor people who have lost their caste through immoral conduct, nor evil-doers (lest you be defiled by contact with them and fail in treating them, for their sufferings are the natural consequence of their failure to obey the moral code).

In this way, your wisdom will shine forth and will get you friends and fame; and it will help you to reach fulfilment in the three fields of human endeavor: righteousness (dharma), prosperity (artha), and gratification of the senses (kāma).

After his initiation the pupil will share for years the life of his master. He becomes a member of the household. He serves his teacher and, day by day, watches him as he treats his patients. He assists him in his pharmacy in preparing medicaments. He becomes familiar with the various tools and procedures of the medical profession, for in-

stance he learns how to apply the "five kinds of treatment" (pañca-karman): emetics, purgatives, cleansing clysters and oily clysters, sternutatories against pains in the head and the throat. He learns when and how to apply fat as a preliminary treatment in making the patient sweat through the use of packs and hot drinks; how to administer inhalations of pulverized drugs turned into vapor; and how to use aromatic smoke in sterilizing wounds, tumors and skin diseases.

Another lesson in store for him is concerned with the handling of the equipment of surgery. There are twenty kinds of knives and sharp needles (śastra), and more than a hundred other implements needed during operations, including the instruments for dressing to protect wounds against infections: twenty-four pincers and forceps (svastika), two tongs (saṁdaṁśa), two hooks (tāla), twenty tubular instruments, catheters (nāḍī), and so forth, thirty probes (śalākā), twenty-six articles of dressing; cloth, thread, and similar utensils (upayantra).[15]

He becomes acquainted with the set of probes and pegs, light sticks made of wood or metal

(śalākā), which are used principally in treating diseases of the eyes, ears and nose.

Besides, he has to learn by heart the encyclopedia of medical knowledge, as it is contained in the compilations of Caraka or Suśruta or later authors. The pupil memorizes it, lesson after lesson, and retains its chapters by rehearsing them in turn, after the example of Brahmin priesthood; in this way, the sacred wisdom of the Vedas was imparted from one generation to the next, an oral tradition flowing down the ages.

There is a special lesson on elocution (Su. I, 4), meant for the teacher, explaining how to pronounce clearly and properly while teaching. The teacher is to recite the text of the traditional lore, verse after verse, prose aphorism after aphorism, and duly to comment upon them. If their contents are not properly explained to the pupil, they will be for his mind what a load of sandal-wood is for the over-laden donkey: a cumbersome burden. For the donkey the precious perfume of the costly wood means nothing. He simply tires under the burden, and the pupil will get tired, too, if the precious meaning of the tradition with which he is burdened is not disclosed to his understanding.

So extensive an oral tradition, passed on through the ages, was in constant danger of dwindling down to the level of a mere feat of memory taken for genuine skill. Suśruta insists that this enormous amount of oral learning be balanced by practical efficiency: the physician who masters both stands firmly on both his legs. Otherwise, when it comes to treating the patient, he will feel as insecure as a coward approaching the battleground.

A pupil, once he knows his medical teaching by heart, should by all means concentrate on gaining practice. A physician who masters both spheres is worthy to be in attendance on a king. But one who has the practical training only through watching and assisting his master, without having thoroughly mastered the theory, does not deserve the respect of decent people and should suffer capital punishment by order of the king. So it is taught.

When the pupil has finished his apprenticeship, upon being recommended by his master, he receives his license from the king. On this occasion a sort of examination takes place. The pupil is asked to recite parts of the traditional texts which

he knows by heart. However, this seems more or less a formality only, closing the term of his studies.

The career of a Hindu doctor reaches its culminating point when he is chosen to be the physician in attendance upon a king. His task will be to collaborate with the house-priest and spiritual guide (Guru) of the monarch, who frequently is the monarch's chancellor as well as chief adviser in all that concerns the daily welfare of the king.

One of the special duties implied in the responsibilities of this appointment is to safeguard the despot against the possibility of being poisoned, a peril from which he is rarely free. There is a special lesson (Su. V, 1) dealing with the control by daily supervision of the royal kitchen and the dishes served the king. It contains a catalogue of the symptoms by which poison may be detected in food-stuffs; it describes the expressions of uneasiness and cunning through which cooks or servants may betray upon their features their wicked intentions. The details of this chapter correspond to the rules laid down in the "Treatise on Policy and Statecraft" (Kauṭilya Arthaśāstra I, 21) on how to safeguard the king from the plots and

dangers of all kinds that threaten him always and everywhere.

Moreover, the king's physician will accompany the army on its march when the king sets forth on a campaign against a neighboring enemy. The physician will be with the vanguard, in order to inspect the wells and supervise the water supply along the route on which the army is proceeding and camping, lest the wells and tanks be poisoned by secret agents of the enemy.

The medical encyclopedias contain no references to hospitals or dispensaries providing medicines for the poor. Such institutions, however, are among the pious donations and liberal endowments described in those Buddhist legends and tales of the first centuries A. D. which dwell upon exemplars of the basic virtue of alms-giving and unselfish generosity (dāna-pāramitā).

Moreover, there exists the famous decree of the Emperor Aśoka Maurya (274-236 B. C.) in his second Rock Edict (257-256 B. C.), celebrating the organization of social medicine established by him along the lines of Buddhist thought and kindred ethics (dharma). Aśoka states that all over his

dominions and in adjoining territories far beyond the borders of his empire, even in Ceylon to the South, and under the Seleucid king, Antiyaka (Antiochus), of Persia and Syria to the Northwest, medical treatment is provided for men and animals. Wherever herbs, roots, and fruits beneficial to men and animals were lacking, these were imported and planted.

Later Buddhist sources show how these institutions of social medicine, sponsored by the king for the welfare of the people, were still flourishing, for instance, in Ceylon, in the fourth century A. D. They tell of hospitals founded by kings, and of physicians appointed by the king, one for every ten villages, while other doctors were charged with the care of the king's army and its elephants and horses.[16]

King Parākrama the Great (1164-1189 A. D.), of Ceylon, maintained a hospital providing for several hundred patients, with a male and female servant assigned to each of them; it had its granaries and dispensaries, yielding everything requisite for proper diet and treatment.

Moreover, there is epigraphical evidence of institutions of social medicine in mediaeval Southern

India. Village physicians are mentioned; there are references to subsidized hospitals in towns and villages, as well as to hospitals attached to temples, monasteries and educational institutions.[17]

The science of longevity has no beginning nor origin (Ca. I, 30). As is true of all traditional wisdom contained in sacred lore and imparted through initiations, its substance is instinct with the very process of universal life. Partaking in the law of nature, which silently rules the life-process of all creatures, the laws of the medical code on health and longevity exist and are effective, whether or not they are revealed to human knowledge and perceived by man's insight. The truth of these laws exists eternally on the transcendental plane, entirely unaffected by what man knows or believes. They inhere in the nature of life and living beings, reflecting their essence, which remains the same at all times.

Out of the sphere of timeless existence—which underlies and weaves together the ever-present reality of extra-human forces with the laws that pervade the temporal and phenomenal web of the universe and man's existence—medical wisdom

steps into the range of man's vision in the garb of historical tradition.

This tradition starts out with intuition (avabodha), not with experience. Its primary essence, or nucleus, is realized through an introverted awareness of the elements and laws that constitute the fact of life and the characteristics of living beings, the interrelation of the many and various data of the life-process. Tradition is not intended to be established through the gathering of facts by sense-experience, nor to be altered through criticism of reason, though observation of minute details and controversy are active in its growth.

The essential knowledge gained by an intuitive awareness of the secret reality of the life-process becomes apparent through instruction (upadeśa). Medical wisdom is not the product of single creative minds. It mirrors the basic elements of reality; like the heat of fire, the fluidity of water, wisdom remains basically the same at all times.

Medical wisdom is called "eight-limbed" (aṣṭāṅga); traditionally it consists of eight parts (tantra):

1. surgery (śalya, literally "arrow"): methods of removing foreign bodies; obstetrics; the treat-

ment of injuries and diseases requiring surgery; the use of surgical instruments, bandages, and so forth.

2. the treatment of diseases of parts above the clavicles (śālākya), affecting the eyes, ears, nose, mouth etc., using as instruments thin bars, small sticks or probes (śalākā).

3. therapy of the organism (kāya-cikitsā): treatment of diseases affecting the whole body, supposed mainly to originate from disturbances of the humors.

4. demoniacal diseases (bhūta-vidyā), dealing with mental derangements and other disturbances, said to be caused by demons (bhūta); these are treated by means of prayers, oblations, exorcism, drugs, and so forth.

5. pediatrics (kaumāra-bhṛtya): treatment of children's diseases, caused by demons.

6. medicinal drugs (agada), antidotes for poisons.

7. elixirs of life (rasāyana), for preserving and increasing vigor, restoring youth, improving memory and preventing diseases.

8. "turning into a stallion" (vājīkaraṇa), dealing with the means of increasing virile power.

These contents of the "eight-limbed" medical

doctrine, again, are classified under the following ten headings:

1. the organism (śarīra).

2. the means of its maintenance (vṛtti): proper conduct, moral as well as physical.

3. the causes of diseases (hetu): improper food, habits or practices causing diseases from within; foreign substances causing diseases from without.

4. the nature of pain and disease (vyādhi), with special reference to disturbances of the equilibrium among the humors.

5. action (karman): treatment.

6. effect (kārya): the result to be achieved by the treatment, i. e. the nature of the normal state to which the patient is to be restored.

7. time (kāla): due regard to the influence of the seasons, and other aspects of time, including the age of the ailing person.

8. the agent (kartṛ): the physician, the requirements of his profession, and its proper practice.

9. means and instruments (karaṇa).

10. the decision upon the form of treatment indicated (vidhiviniścaya).

Suśruta (I, 34) describes the art of healing

(cikitsā) as being supported by four "legs," or "quarters" (pāda); on these, if they are of the proper kind, the art is firmly established: the medical man, the patient, the medicament, and the nursing servant.

1. A medical man is called a "leg," or support of the art of healing, if he has thoroughly learned the contents of traditional teaching, has observed how it is applied, and has gained practice on his own part. He must have skilled hands, be ritually clean, brave, and ready of hand with instruments and medicines. He must have presence of mind, be intelligent, energetic, and learned, intent on truthfulness and righteousness.

2. A patient is called a "leg," if he has strength of long life (āyus), is full of vitality (sattva), and is able to be cured (sādhya). He should be well-to-do, prudent, an orthodox believer, abiding by the words of the doctor.

3. A medicament is called a "leg," if it originates from an auspicious place and is gathered on an auspicious day. It should be of the proper measure, pleasing to the mind, full of odor, color and sap. It should have the particular virtue of subduing the "humors" of the body when they are "incensed." It should not cause languor, nor harm when the disease grows worse, and should be administered at the proper time, after having been duly inspected.

4. A nursing servant is reckoned a "leg," if he is devoted and friendly, not inclined to disgust, able to watch the patient and to fulfill the orders of the doctor, and if he is untiring.

The description of the patient who provides real support to the art of medicine shows that the Hindu physician is not any too confident of his skill. In general the doctor should avoid treating diseases from which a patient has been suffering for more than a year. In diagnosing he should ascertain whether the patient has "strength of long life" (āyus). Caraka warns (I, 10): "a physician who takes up the treatment of a disease that is incurable incurs loss of wealth, loss of knowledge, loss of prestige, censure of the world, and incapacity for practice." Suśruta, in the "lesson on the diagnosis of wounds, whether they are curable or forebode destruction" (I, 28), cautions the physician against being ready to accept a case which seems hopeless: "a practitioner incurs public disgrace by trying to cure a patient whose life-strength (or life-time: āyus) is gone."

Finally, one should not forget that Hindu medicine is concerned primarily with men. Women and female children, according to the prevalent Indian

point of view, are of minor importance. Expectant mothers only are excepted, because they may bear male offspring, who will continue the male line and when they are grown will provide for the unbroken sequence of ancestral offerings indispensable to the well-being of their deceased forefathers.

Before proceeding to examine a case, the doctor should watch for auspicious signs. The encouraging or inauspicious appearance of the messenger who has been dispatched to fetch the doctor will to some extent reveal whether the case is curable or better left alone. The omens, lucky or unlucky, which the physician encounters while underway to the patient's house, afford additional clues as to whether the patient is to recover or is doomed. Moreover the doctor should pay attention to the dreams of the patient and his near relatives, since they may indicate whether or not the illness will take a satisfactory course.

Suśruta (I, 29) gives a long list of dreams which are peculiarly interesting from the standpoint of the psychology and the symbolism of dreams; this material is akin to the descriptions found in Hindu dream-books, novels and legends.[18] Though the

interpretation is all too simple, the list contains very valuable material; it shows the careful, searching attitude of the diagnosing doctor and, in this instance, an open mind on the part of the medical profession toward enrichment of its methods from neighboring fields:

Now I shall teach of dreams portending death and health, such as the relatives may have, or the patient himself.

Whoever (in his dream) goes toward the South (i. e. the region of death and malignant demons), his body anointed with oil or grease, seated on a camel, a tiger, a donkey, a boar or a buffalo,

or whomever an old woman drags toward the South, she, darkskinned, clothed in red, laughing and dancing with dishevelled hair (i. e. an apparition of the Great Goddess, the Devī, in her terrific aspect as Kālī in her frantic dance, devouring her victims),

or whoever is embraced by spirits who are tortured in hell (evidently he is already in the company of the dead; they bid him welcome), or by ascetics (who have severed the bonds of earthly life and do not care whether their bodily frame carries on or dissolves),

or whomever wild beasts with distorted faces sniff about the head (as if he were a corpse), or whoever drinks honey or sesame oil (which form part of the offerings to the deceased),

or whoever sinks into mud, or dances and laughs, his body smeared with mud (i. e. his appearance resembles a "bhūta," a ghost),

or whoever (like a delinquent facing capital punishment) is stripped of his clothes and wears a red garland on his head,

or whoever grows a bamboo or a reed or a palmyra tree out of his breast (as though he were already turned into dust and formed part of the ground),

or whoever is swallowed by a fish or has intercourse with his mother, or whoever falls from the top of a hill, or into a chasm full of darkness, or is carried away by a swift stream,

or whoever grows bald, or is overcome and bound by crows and similar animals,

or whoever beholds stars falling from the sky, whoever sees a lamp extinguished or experiences the loss of sight,

whoever beholds the gods on their thrones or the earth shaking, whoever experiences vomiting or evacuation, or whose teeth fall out,

or whoever climbs up a silk-cotton tree (śalmalī: a region of hell is called after it), or up a kiṁśuka tree (the red blossoms of which adorn the victim of the executioner) or up a sacrificial post (to which the victim is fastened to be slaughtered), or whoever ascends an anthill, a coral-tree (Erythrina Indica), a kovidāra-tree in full blossom or a funeral pyre,

or whoever receives raw cotton, sesame oil, oil-cakes or iron objects, or whoever eats cooked food or drinks liquor (in his dream):

if he be healthy, he will contract a disease, and if he be diseased, he will come to death.

Certain dream-symbols are associated with specific maladies; friendship and intimacy with dogs is related to fever, friendship with monkeys to consumption.

Auspicious visions in dreams [Suśruta goes on], are gods, Brahmins, "twice-born" people of the three upper-castes, living friends and kings;

a brightly burning fire or flawless, clear water promises luck and the vanishing of disease.

Meat, fish, fruit, white garlands and clothes purport financial success and the vanishing of disease.

If the dreaming person ascends stately terraces, climbs trees laden with fruit, mounts elephants and ascends mountains, this points to material gain and the vanishing of disease.

If he achieves the crossing of streams, great rivers and oceans full of turbulent and muddy water, this is a sign of good fortune and the vanishing of disease.

If a snake or leech or insect bites him, a clever man should interpret this dream as denoting freedom from disease and gain of money.

A patient who sees auspicious dreams of this kind

may be diagnosed as possessed of long life (dīrghāyus), and the doctor should accept the treatment of the case.

The paragraph on auspicious dreams sounds as if it were copied from a dreambook. Here, as with pre-analytical dream interpretation in general, the fact is ignored that the same symbols can have very different meanings according to the context in which they figure. Meeting dead people by no means invariably foretells the death of the dreamer, even when he is ill; symbols of passing away frequently point to spiritual transformation and rebirth into a new attitude towards the task of life. Yet the lurid description of this kind of encounter with the dead reminds one of a certain sinister dream of Oscar Wilde's, which soon after was to be actually fulfilled. In the last month of his life, confined to the bed on which he was to die, Wilde, suffering from cerebral meningitis complicated by another terrible disease, had a depressing dream wherein he was supping with the dead,—an appropriate symbol foreboding the approaching end of the "king of life," the master of dining and wining, the brilliant raconteur of the dinner-table.

Hindu medicine is well equipped with instru-

ments for various purposes. Still, the physician is told that his best instrument will always be his own skilled hand. For the diagnosis he will have to a large extent to rely on his own senses, on what they tell him of the patient and his environment, on what he perceives in watching and scrutinizing the organism of the patient with his eyes and hands, on what the noises and smells emanating from the patient's body may tell him. His senses, sharpened by experience and instructed by traditional knowledge, are his principal guides in diagnosis.

Preliminary training in surgery is afforded by using practice objects (phantoms). Cucumbers, gourds and melons provide the material for trying out all kinds of incisions and amputations. The opening of tumors and swellings is practised on bags and pouches filled with water and mud. Scarification may be practised on hairy stretched skins; the piercing of hollow organs on the hollow stalks of lotus plants, and on canals taken from the bodies of dead animals. Worm-eaten wood, reeds, hollow stalks, the ends of dried cucumbers provide the material on which probing may be learned. Extraction is practised on the marrow

of fruits and the teeth of dead animals. A board from the rose-apple tree, covered with wax, serves as a practice-object for opening abscesses and effecting their discharge. Pieces of soft leather and fine strong fibers will teach the beginner how to close a wound with stitches. A clay-figure is used to show how wounds are dressed on different parts of the body. The administering of caustics is practised on pieces of meat. The opening of a hollow cucumber or the lateral mouthpiece of a water jar serve for practice in giving enemas.

Hindu classic medicine stems from priestly magic; unlike the pioneers of modern thought who became famous through their persecution by the church for contradicting traditional ideas, Hindu medical men never were at variance with the authority of Brahmin priestcraft and revealed sacred lore. Like the traditional knowledge of other skills, medicine flourished in the all-comprehending atmosphere of Hindu orthodoxy. The general features of Brahmin sacred tradition, its myths, gods, and demons, form an intrinsic part of medical learning. Mythical tales explain the character and origin of diseases.

An old tale, relating how, in the beginning of time, consumption originated with the misconduct of the god Moon towards twenty-six of his wives, is retold in the medical compilations (Ca. VI, 8; Su. VI, 41; Ha. II, 60) along the lines of popular religious tradition (purāṇa); this is done in order to explain the name of the disease, for the name is believed to comprehend the essence of that which it denotes; consumption (yakṣman, kṣaya, śoṣa) is called "King's Consumption" (rāja-yakṣman), because it first became manifest with King Moon.

In the beginning, the god-creator married his twenty-seven daughters to King Moon. All of them are asterisms on the moon's path, the so-called "lunar mansions" forming the lunar zodiac. The Moon, however, became so completely enamoured of one among them, that he utterly neglected his conjugal duty toward the remaining twenty-six. Having complained to their lord in vain about the frustration of their married life, the neglected wives reported the matter to their father. In vain, too, the father rebuked his son-in-law repeatedly for his inexcusable monogamous habits. Eventually, the father-in-law lost his temper and breathed forth his wrath. The breath

flaming from his mouth turned into the figure of a fierce, devouring demon; figures of this kind, demons or fierce animals, embodying the fury and aggression of some superhuman being, are frequently encountered in Hindu myths. This demon, incorporating the destructive force of consumption, assailed King Moon and caused him to wane away. Since King Moon was the first being to suffer from the disease, it was called, on this account, " King's Consumption."

The moon is the cosmic life-giving principle. Every night, with the cool, milky, nectar-like moon-rays, it nourishes the vegetation over which it rules. The moon is the heavenly cup containing the elixir of immortality, the refreshment of the gods. The moon " makes night," quenching the devouring heat of daytime, which the sun brings. By means of its mild light, the moon distills the enlivening juice which restores to all living beings their life-fluid after it has been dried up by the relentless fire of the sun. Small wonder, then, that, because of the affliction of the Moon with consumption, the course of the universe and its very life-process became seriously upset. To counteract the danger that the universe and its beings

might completely wither away, a compromise was finally reached. The Moon promised to lead a perfectly regular married life, giving to all twenty-seven wives, in turn, their rightful due as he went his way along his nightly course. Though it could not be eradicated altogether, the curse became attenuated to the extent of saving him from utter destruction. Still he remained liable to periodical progressive consumption for the fortnight of the waning moon. Moreover, the demon of consumption, forced to desist from destroying this victim, was compensated by the assignment to him of men and animals for his work of annihilation.

Another instance of the relation of name and nature is offered in the explanation of the origin and malignant character of spiders with their poisonous sting; they are said to have come into existence out of the drops of sweat which fell from the forehead of the primeval saint, Vasiṣṭha. This holy hermit once became incensed against the king Viśvāmitra, when the latter tried to carry away his most precious belonging, a divine cow, out of whose udder could be milked everything its owner might wish for. Drops of the saint's perspiration, while he was glowing with wrath, fell on grass

freshly cut (lūna) by the holy man. Suśruta tells this story (V, 8) in order to explain why the poisonous insects are called as they are, having received the name "lūta," "spider," from the grass upon which they came into existence as manifestations of deadly anger.

Similar tales could be added indefinitely. Since the name of a thing in Sanskrit, the language of revealed wisdom, according to Hindu belief, expresses in a more or less cryptic way the nature of the thing in the realm of sound, medical knowledge offers many a clue to the character of diseases and drugs through tales disclosing the origin of their names; these mythical etymologies form part of their scientific description.

A "monograph on garlic" (laśuna-kalpa) in the "Elephant Medical Lore" (Ha. IV, 28), emphasizing the healing force of garlic, tells how it originated from the divine essence of life, the elixir of immortality (amṛta):

When in times of yore the divine sunbird Garuḍa, on behalf of his mother, carried away the beverage of immortality from the gods who kept this treasure, a drop was spilled from the vessel, shaken by the bird's roaring flight along the sky. It fell to the

ground. Since the spot on which it fell was an unfavorable one, garlic having sprung from this potent liquid has an unfavorable smell and an acrid flavor. It is light and swift in its effect and of pungent taste.

Hence it is called "rasona," i. e. "rasa-ūna," which means "wanting in (pleasant) taste." Or else, with regard to its healthful effect, its name "rasona" may be understood as "containing the most excellent (ut-tama) of saps (rasa)."

That it should be necessary for the physician to propitiate and conjure the forces of nature which he wishes to serve him, is commonly believed. The Hindu doctor uses caustics (kṣāra) for the treatment of skin-diseases, fistulas, abscesses and other ailments. For preparing these caustics he needs wood-ashes. Being his own apothecary, he sets forth in search of a tree, the wood, leaves, roots and fruits of which will constitute part of the raw material (Su. I, 21).

He is advised to proceed in autumn, after the rains, when Indian vegetation is full of sap. Fasting and ritually clean, he is to resort to some hillside; now he makes his choice, the kind of tree he will fell being by no means an indifferent matter.

It should be a "black muṣkaka" (Schrebera Switenoides), growing in an auspicious spot, big and flawless and in its prime.

After having worshipped the indwelling tree-goddess by offering incense, he fells the tree, addressing it with the following formula of entreaty:

O thou whose strength is fire (agni)! O thou whose strength is great! May thy strength not vanish away! Remain here on the spot, thou propitious one! Thou wilt perform what I am bound to perform! After having performed what I shall enjoin thee to do, thou wilt ascend to the blissful abode in heaven!

A Hindu carpenter or householder, when he fells a tree for building a house, according to Brahmin ritual lore, acts just contrariwise. Before felling the tree, he prays to its life-spirit not to "remain on the spot," but gently to abandon his abode, so as not to get hurt by the axe, and to cause subsequent mischief to the house by haunting its timber. But having an opposite aim, the physician is eager to preserve the fiery life-force dwelling in the substance of the tree, lest it should vanish from its demolished home and, in doing so, render ineffective the caustic prepared from the tree. The

physician wishes to get hold of the spirit of the tree along with its material substance. As a reward he promises to the fiery life-spirit of the tree, the dryad, ascent to the heavenly realm of the gods.

Though the technique of rational treatment gains ascendancy in post-Vedic times, prayers and incantations, charms and exorcisms, offerings and amulets retain their respected place in classic medicine.

When the new-born babe is given the breast for the first time, the physician supervising this first feeding works an auspicious charm on the nursing mother to promote lactation (Su. III, 10). He utters these benedictory stanzas:

> May four oceans, full of milk, constantly abide in both your breasts, you blessed one, for the increase of the strength of the child!
>
> Drinking of the milk, whose sap is the sap of immortal life divine, may your boy gain long life, as do the gods by feeding on the beverage of immortality!

These irrational elements form part of the doctor's equipment, side by side with the proper use of occlusive dressings, leeches, and clyster-pipes. They represent the psychic approach of archaic psycho-somatic medicine, and are considered the

indispensable subsidiary expedients of every-day routine; just as in modern times persuasion, hypnotism, and psychoanalysis are resorted to in an attempt to appease demons in the form of complexes and obsessions. There are many other expedients as well, which produce an irrational suggestive effect. Who will underrate the power of the restrained and commanding attitude of the doctor, enhanced by the shiny and complex technical apparatus of his office, and the aseptic, ascetic, convent-like atmosphere of our hospitals, constituting the modern form of the timeless and indispensable element of medical magic?

II. THE HUMAN BODY: ITS FORCES AND RESOURCES

THE Hindu concept of the human body, throughout the history of Indian thought, is characterized by the belief that the body is a manifestation of divine substance and energy, as is the whole universe. The principal forces and faculties which abide in the organism, giving it life and supporting its processes, are microcosmic counterparts of the powers which pervade the cosmic body and maintain it through their various antagonistic and cooperative activities.

This idea underlies the latest, classic form of Hindu religion and philosophy, the system of the Tantras. The formulation of this system may be traced to the first centuries of our era; its elements go back to Vedic tradition on the one hand, to primitive pre-Aryan antiquity on the other.[1]

The Hindu devotee who practises Tantric ritual is taught to think of himself not as the ordinary being whose duties he performs and whose rôle he plays in the course of his daily routine, but as a

microcosmic sum total of the divine cosmic forces. This he realizes by withdrawing into devotional meditation. As part of his act of daily worship he is enjoined to perceive the presence of the Hindu pantheon in his own body, distributed throughout its organs and limbs. He cultivates an awareness of the ever-present assembly of divine energies within the frame of his mortal existence, awakening them from the dormant state of unconsciousness through a ritual of gestures and invocations. He shapes with his fingers symbolic figures which stand for the essential character of each deity (mudrā), and places these figures, in turn, on the supposed abodes of these deities in various parts of his body (nyāsa). In this way, he is able to evoke before his mind the presence of the gods, accompanying his gestures with corresponding mystic syllables and incantations (mantra). These, again, contain the essential energy of the divinity addressed, guised this time in the subtle form of sound.

Thus, the devotee of Tantrism conjures up the divine forces which constitute the sum total of his bodily structure and its faculties; in placing the figures of the deities on the parts they inhabit, uttering at the same time the sounds which pe-

culiarly belong to each divine power, he becomes conscious of their beneficent, powerful presence. Through the daily ritual of "nyāsa" he experiences a temporary transmutation of that self of which he is conscious ordinarily, that of the earth-bound common individual, into a secret community of beings, divine in substance and faculties. He visualizes himself as the microcosmic counterpart of the world organism, the manifestation (māyā) of the energy (śakti) of transcendental being. Through the act of devotional magic he transcends, as the Vedic formula puts it, the sphere of purely phenomenal or apparent reality (anṛta), namely his conscious ego-personality, and becomes aware of the essential truth (satya) of his nature.

The concept of the body as an assemblage of divine powers has its place also in veterinary medicine which reflects popular belief to a higher degree than the more abstract and "scientific" conceptions of classic medicine. The "Wisdom on the Longevity of Elephants" enumerates, in the chapter on conception and formation of the foetus (III, 8), the "virtues of the gods" (devaguṇa) which abide in the organism of the animal:

Now the detailed description of the virtues of the gods is taught:

Brahmā abides in the head, Indra in the neck, Viṣṇu in the trunk, the Fire-god in the navel, the Sun in both eyes, Mitra in the hind-legs of the elephants. The First Demiurgic Creator (dhātṛ) and the Secondary Demiurge (vidhātṛ) dwell in both sides of the belly, the Lord-Creator (prajāpati) in the male organ. The Serpents, who support the yoke of all the worlds, dwell in the intestines. For in the elephants abides the cosmic Self which is the primary matter of the material world (pradhānātman) and is beyond age and decay. In the forelegs abide the Twin Horsemen; in the ears the divinities who preside over the directions in space.

Space or ether, the all-pervading and most subtle of the five elements, is the carrier of sound; it is reflected in the quality of sound which reaches the ear through space, and in the faculty of hearing. "The Moon abides in the mind, the Rain-god Parjanya in the heart of the elephants," for the elephants are regarded as rain-clouds walking the earth; their presence, through this celestial kinship, attracts the beneficent downpour which quickens vegetation after the summer drought, and provides for the sustenance of men and animals.

A mystic yoga doctrine, on the other hand, interprets the structure of the human organism as the counterpart of the unfolding of creation and views it as containing the five elements, ether, air, fire, water and earth, in the sequence in which they evolve out of each other in a gradual process of transmutation by condensation, from subtle to solid. A corresponding series of centers, bearing the symbolic names Mūlādhāra, Svādhiṣṭhāna, Maṇipūra, Anāhata, and Viśuddha, representing the essence of the five elements, earth, water, fire, wind, and ether respectively, is conceived by the adept of Kuṇḍalinī-yoga. These centers are situated along the spinal column and form a sequence of strata of the human organism.

The breathing technique of Kuṇḍalinī-yoga is intended to establish these mystic centers in consciousness and bring them into play. Each center has the shape of a lotus calix showing different colors and a certain number of petals and certain symbols of its own; it forms the seat of one specific divinity who impersonates and presides over the corresponding sphere of the universe. Again, through this pattern applied to the human body, man is afforded the means by which to

experience his own nature as the exact counterpart of the world organism; he visualizes his body as enlivened and ruled by the same divine hierarchy which activates the life-process of the universe.

Apart from this concept of the human body in Kuṇḍalinī-yoga, which goes back to non-Brahmin antiquity, the idea of the parallel structure of macrocosm and microcosm forms a principal tenet of Brahmin wisdom in Vedic tradition. This parallel serves to clarify the character and the working of the supreme creative principle; in bringing into being and maintaining man and the universe, this principle manifests its energy in the various forms of personalized divinities who co-operate in their respective spheres.

Such a correlation or correspondence of entities, cosmic and human, can be substantiated in many ways, partly through the pictorial script of the myths, partly through abstract speculation.

One such example is the myth dealing with the origin of the universe from the body of a primeval being, the First Great Man (puruṣa). According to Ṛgveda X, 90, the gods, in the beginning of time, took this primordial man and sacrificed him; they divided the victim; his head became heaven,

his feet earth; his ears became space, his eyes the sun, his breath the Wind-god, and so on.

Another Vedic source describes the sense-faculties and life-forces of the human body as the divine "guardians of the world spheres" (lokapāla), which, at the dawn of creation, emanate from the organs and parts of the puruṣa, when the supreme Self (ātman) has extracted and condensed the latter from the fluid life substance of the primal waters.[2] Proceeding from the mouth, nostrils, eyes, ears, and other parts of the puruṣa, the lokapāla fall into the primeval ocean and seek for an abode wherein they may be established and may eat food. They decline to enter the bull and the horse, offered them first, saying, "Verily, this is not sufficient for us";—whereupon the Supreme Being offers them man, and they say, "Oh, well done." On His advice, "Enter into your respective abodes," they proceed to invade the human organism. "Fire became speech, and entered the mouth; wind became breath, and entered the nostrils; the sun became sight, and entered the eyes; the quarters of space became hearing, and entered the ears; plants and trees became hair, and entered the skin; the moon became mind, and entered the heart; death

became breathing down (apāna), and entered the navel; waters became semen, and entered the male organ. . . ."

Thus the sense faculties and vital forces, evolved first through the anthropomorphic transformation of the primal waters, the puruṣa, into cosmic entities, upon entering man are retransformed into the components of the organism and take their places in the same seats and organs from which they proceeded when emanating from the model organism of the First Great Man.

This entry of the divine life-forces into man to make him their home is a familiar theme of Vedic cosmogony. A hymn of Atharva-Veda (XI, 8)[3] describes this process in a somewhat different way:

> . . . when (in the beginning of time) the Divine Craftsman, who was father and superior to the Divine Craftsman (familiar from subsequent mythical periods and events), drilled the apertures (which are the outlets for the sense-faculties and vital processes of the human body), the gods took the mortal for their house and entered man.
>
> Sleep, forsooth, Weariness, Bane; the divinities Evil by name; Old-age, Baldness, Hoariness entered the body, one after another.
>
> Theft, Ill-doing, Wickedness, Truth, Sacrifice, and

Great Fame; Strength and Valor and Force entered the body, one after another.

Luck and Ill-luck; Increase and Waning; Liberalities and Illiberalities whatever there are; and all Hungers and Thirsts entered the body, one after another.

Blaming and Not-blaming; and what is "Well!" and "No!"; What is Known and Unknown, and What else is to be Taught; . . . entered the body, one after another.

The hymn goes on to enumerate whatever activities and reactions, faculties and processes constitute man's life, positive and negative,

. . . delights, joys, enjoyments, . . . laughing, . . . dancing, . . . addressing and prating . . .; breathing forward and breathing downward; sight and hearing; the indestructible and destruction; breathing asunder and breathing upward; speech, mind, entered the body, one after another.

Whatever waters there are and whatever divinities; the Lordly Power (of the Highest Being: Virāj) together with the Brahman (the supreme essence); Brahman entered the body; the Lord-Creator dwells in the body (as the generative principle).

The Sun took possession of the eye, the Wind of the breath, each one as his own share (while the other forces of nature found their places in the organs and

functions of the human body which correspond to them).

Then the divinities bestowed man's other (mortal) self (which is consumed on the funeral pyre) upon the Fire-god . . .

Therefore, indeed, one who knows man thinks "this is Brahman" (the divine principle manifesting itself in all forms and activities of the universe); for all divinities have their abode in man, as cows in a cow-pen. . . .

This divinization of man's nature is the basic concept of Hindu orthodox monism with regard to the human organism. Man is looked upon as harboring the divine principle (Brahman) from which life in all its forms proceeds; the body in its faculties, activities and reactions reflects all the manifestations of the creative principle which exist on the cosmic plane as guardians and energies of the various spheres.

The correspondence between macrocosm and microcosm which results from this speculative monistic pattern allows for the interpretation and interrelation of both spheres; through it, man is assigned his place and attitude in relation to the extra-human forces of nature without, and to the extra-personal, subconscious spheres and forces of

his own nature, as well. It serves to circumscribe man's destiny in this life and in the next; it confronts him with the mystery of his existence in a way that makes it acceptable.

This concept, therefore, looms large in the philosophic speculations of the Upanishads, whenever the nature of man is discussed. The parallelism between the nature of man and the universe is emphasized in the enumeration of carefully coordinated cosmic and human entities. In a series of equations, the various manifestations of the one supreme energy and substance which produces the universal and the human organism are considered now " with regard to ourselves " (adhyātman), as faculties of human nature, and now " with regard to the divine principle " (adhidaivatam), as personified cosmic powers and principles.[4]

Thus, the concept of man's organism as a compound of cosmic powers allows for a converse vision of the universe, in which microcosmic potencies are recognized in those divine forces which animate the world organism.

There is a hymn in Atharva-Veda (XI, 4)[5] which is addressed by the devotee as a prayer to his own life-breath to make sure of its continued

beneficent presence within himself. It is concerned with the main task of ancient Hindu medical wisdom or "āyurveda," the prolongation of life (āyus). In this respect it belongs to the medical section of the Veda of magic, though its principal content is a comprehensive description of the functions and potency of life-breath in both macrocosm and microcosm. In literary form, it belongs to the "descriptive eulogies" (arthasūkta) among the hymns and incantations; technically, it is used either with an amulet of rice and barley in a rite for averting evil (mahā-śānti), called "immortality" (amṛta), or in a propitiatory ritual for appeasing the malignant planet Saturn, and on other similar occasions. Its most impressive use occurs during the ceremony of initiation, at the crucial moment in the life-career of a Hindu of one of the three upper castes: when the Brahmin teacher takes the boy pupil out of the custody of his parents, he invests him with the sacred thread and, through the magic power of Brahman vested in him, addresses himself to the accomplishment of the spiritual rebirth of the adept, the transfusion into this new receptacle of the power of sacred wisdom. At this moment, the teacher lays

his hand on the navel, the life-center, of the youth and utters the stanzas, which originally were conceived as a solitary incantation which the initiate was to address to his own life-breath:

1. Adoration to Breath,
   under whose power is this All,
   who has become the Lord of All,
   in whom All stands grounded.

2. Adoration, Breath, to thee, the roarer,
   thee, the thunder,
   adoration to thee, Breath, the lightning,
   adoration, Breath to thee, thou raining one.

3. When Breath with thunder roars upon the herbs,
   impregnated, they conceive
   fruits in their wombs,
   then many are they born, and all around.

4. When Breath, the season having come,
   roars at the herbs,
   then, whatever is upon the earth,
   all is delighted.

5. When Breath has rained
   upon the great earth, with rain,
   then cattle are delighted,
   " verily greatness will there be for us!"

6. The herbs being rained on,
   had a talk with Breath,

"our life-length (āyus), verily, is by thee made
long,
and all of us hast thou made fragrant!"

The devotee, in paying homage to his own life-breath (prāṇa), first celebrates it as the cosmic life-principle, the Lord of All, whose enlivening forces manifest themselves most impressively at the rainy season; hence the references to rain, thunder and lightning that quicken vegetation and cattle and rescue nature from the merciless summer heat. The rain-bearing monsoon wind, thought of as carrying on its wings the refreshing fluid of the life-giving celestial waters, is the most patent and auspicious manifestation of the life-breath of the universe.

From the macrocosmic aspect of breath the hymn turns to its activity in man. All its movements and expressions are worthy of worship (7, 8): its flowing in and out; its turning away, and its returning (that it is the same life-bearing, fluid, essential substance that moves downward and forward seems evident). There is a healing force (bheṣaja), a curative element or medicine in breath (9), if it is properly worshipped and attended to. This remark refers to the breathing exercises

which, apart from special yoga technique and training, form part of the daily devotional practice of the Hindu at dawn and at dusk. The solemn rhythmical monotony of the incantation suggests that its recital may have been accompanied by a regulated rhythm of breathing, apt to evoke the presence and to propitiate the goodwill of Breath:

7. Adoration be to thee, who comes,
   to thee, who goes away,
   adoration, Breath, to thee who stands,
   also to thee who sits, be adoration!

8. Breath, adoration to thee, breathing forth,
   adoration to thee, breathing down,
   adoration to thee, turned away,
   adoration be to thee, turned back;
   this adoration, to thee, in all forms of thee.

9. Breath, that body dear to thee,
   that body even dearer,
   thy healing force, as well,
   bestow thou it upon us unto life.

Breath maintains beings as a father does a son. But since it is the paramount principle of nature, Breath incorporates the negative as well as the positive aspects of existence. In this respect it ranks with the highest Hindu divinities (Viṣṇu, Śiva, the

Goddess), who, representing the universal source and law of life, incorporate the destructive forces along with the creative and maintaining principle, and display a wrathful and terrifying attitude (ghoramūrti) as well as one that is benign and merciful (sundara-mūrti). Breath can appear as deadly sickness, as destructive fever (takman); nay, it is death incarnate. As such it is the carrier and guide of the soul in the hour of death. The immortal Breath, in abandoning the body, gathers together the sensual and psychic forces of "him who speaks truth," of the initiate of the secret wisdom, and carries his "soul" to the highest heaven of the gods:

10. Breath clothes the beings,
 as a father a beloved son;
 Breath is Lord of All
 that breathes and breathes not.

11. Breath is death, Breath is fever,
 Breath the gods do wait upon;
 Breath may carry him who speaks truth
 into the highest world.

Life-breath is to be regarded as the unity of antagonistic principles. In cosmogony it manifests

itself as "Virāj" (12), that is, as the "widely ruling power" which is the first female principle to evolve from the supreme being as his daughter, mate or feminine aspect. She, the primal cosmic "Cow," is maternal nature, bringing forth the universe and representing its substance. At the same time, prāṇa is primeval energy, enlivening all beings, and urging them by her commands on to their respective activities. Moreover, in maintaining the universal life-process, life-breath manifests itself as Moon and Sun, that is, as the moistening, nourishing principle which is "food" and "feeder" for gods and creatures, and as the fierce, devouring power of fire in its celestial form which matures and withers the organisms. Such a union of opposites, in the case of the microcosmic life-breath, is observed in its twofold movement, breathing forth and breathing down; and in the two principal kinds of sustaining foodstuff, rice and barley (13, 14,); it is prāṇa that enables man to live while in the womb, and to be reborn as son and *alter ego* once he is expelled from the womb by the pneumatic pressure of the mother's life-breath:

12. Breath is She, the Power-Widely-Ruling,
    Breath is She, the Power-that-Commands;

Breath all wait upon, Breath is Sun and Moon;
Breath they call the Lord-and-Creator-of-Beings.

13. Breathing forth, breathing down are rice and
 barley;
 Breath is called the draft-ox, drawing;
 Breathing forth is set in barley,
 breathing down, called rice.

14. Man breathes down, breathes forth,
 within the womb;
 when thou quickenest, O Breath,
 then he is born again.

The hymn then dwells again on the macrocosmic aspects of life-breath in the form of the fire of lightning, the divine babe that grows in the watery womb of the motherly clouds (mātariśvan) (15); of wind (15), and rain (17), and the vegetation stirred into existence by the cosmic prāṇa (17). Thus the incantation returns to the idea from which it started; in closing the cycle, it announces the reward which is in store for the initiated who becomes aware of the power of breath and worships all its aspects, revering its very sound as perceived in its ceaseless rhythmical flow, both in his own organism and in the universal body (18, 19):

15. Breath they call Him-that-Swells-in-the-Womb;
    Breath is called wind,
    in Breath, what has been, what will be,
    in Breath does all stand grounded.

16. They of the Atharvans, of the Aṅgirases,
    they of the gods, those born of men, as well,
    herbs bring forth herbs,
    when thou, O Breath, doest quicken them.

17. When Breath has rained
    on the great earth with rain,
    herbs are born forth,
    whatever plants there are, are born.

18. Who knows this of thee, Breath,
    he, grounded in whom thou standest,
    to him shall all bring tribute
    in yonder highest world.

19. Breath, as these beings all
    bring tribute to thee,
    so shall they bring him tribute
    who hears thee, thou well-heard-of one!

In another cycle of seven more stanzas the hymn delves again into the secret nature of prāṇa as the supreme principle in man and the universe, enlarging on its diverse aspects.

Prāṇa excels over the other divine powers which

animate the human body as sense faculties and active agents; for prāṇa alone partaking of the wisdom of Brahman remains unwearied and ceaselessly active, while the others tire and lie down, when man falls asleep (23-25).

Its paramount strength is extolled in terms of solar symbolism; it is compared in power to the eight-wheeled chariot of the sun, to the wheel of the sun-disk with its single rim; like the solar force, worshipped elsewhere as representing the supreme principle, prāṇa is of a twofold character, being intra-mundane and supra-mundane at once (22); like everything else, it manifests itself with one half of its strength, while the other half of its essence abides beyond, inscrutable, not to be ascertained by any sign, in the transcendent sphere, wherefrom the universe proceeds.

In this twofold character, prāṇa is comparable to the wild swan (haṁsa), another symbol of the sun (21). The swan is thought of as a miraculous creature. It is superior to other aquatic birds living on lakes and ponds and bound to their natural habitat, in that it can separate itself from the watery realm in which it is at home. Withdrawing both legs from the liquid element, it soars

into the upper reaches of the atmosphere to cover wide distances in its wandering flights; it is as much at home in the ethereal realm above as in the waters below. The swan is the homeless, free wanderer between the upper and the lower spheres, the life-giving waters of earthly existence and the ether, the realm of pure formlessness, the infinite.

Like the swan, prāṇa as the life-giving principle is intra-mundane, dwelling in the universe and its beings, while as the supernal source of universal energy it is supra-mundane. But unlike the bird with which it is compared, the swan-like prāṇa never withdraws both its feet from the " watery " realm of the macrocosm and microcosm which it is animating; should it do so, life would cease to exist.

The very term for swan, " haṁsa," in post-Vedic tradition, is supposed to express in its two syllables the activity of inhaling and exhaling; it is onomatopoeic: " haṁ " describes the sound of inhaling, " sa " of exhaling, breath. Prāṇa is the inner swan, which, through the unceasing song of its very name, brings about the twofold activity of the essential breathing down and breathing forth. The outgoing movement, breathing forth, is compared in the hymn to the swan's withdrawing one

foot from the body, the realm below, which evolved from the primal waters. But the virtue of the Breath Swan most worthy of wonder lies in its keeping " one leg " in the " water "; it does not withdraw from the body, though it proceeds out of the body with every exhaling movement. Miraculously, prāṇa abides with man, though, like the wandering swan, it is free to depart at any moment from the human body and to return to the ethereal sphere, its other home. When in " breathing forth " it withdraws one foot for a while, prāṇa seems ready to leave the realm below, and to soar up far away into the vast upper space; then, however, in " breathing downward," it again drops its foot back into the watery realm of earthly existence.

Life-breath, man's inner swan, remains faithful to the abode it has chosen in man's body; through its incessant twofold movement the swan reestablishes the continuity of its participation in both spheres, the inner and the outer, the higher and the lower. Prāṇa plays the rôle of the life-giving guest of the human body, as it were, deigning to stay on and to bestow its beneficent presence for a full life-time; if properly honored, it never withdraws

completely, though free to do so; communing in a ceaseless rhythm with the sphere beyond the organism, it proceeds from its apertures with one of its limbs:

20. As yet unborn, he moves within divinities,
    having come into being, having now become,
    so is he born again, so having been,
    he enters forcefully what is to be,
    what will be, father into son.

21. The Swan in rising draws not one foot from the waters.
    Verily, if he should draw that out,
    there would be no today, no morrow,
    night, nor day, not ever would it dawn.

22. On eight wheels it rolls, with single rim,
    with thousand syllables, forth forward, down behind.
    With this half has it brought forth all existence—
    what that half is, what is the sign of it?

23. Who lords it over all, all this that stirs,
    born of all births,
    with a quick bow among the inexhaustible ones,
    as such be adoration, Breath, to thee.

24. Who lords it over this, all this that stirs,
    of every kind of birth,

unwearying and wise by Brahman
may Breath stand by me.

25. Upright among the sleeping, wakeful,
never lies he prone,
no one soever has heard of his
sleeping among the sleeping.

26. O Breath, turn not away from me,
never another shalt thou be than I,
like the Babe-of-the-Waters
I bind thee to me unto life, O Breath!

This elaborate specimen of Vedic speculative poetry should serve to elucidate the unchanging Brahmin orthodox tradition regarding the human body, its origin and nature, and its kinship with the powers of the universe.

The powers within man and without, in Hinduism retain the archaic religious character of personalized divinities to whom the Vedic hymns are addressed, whenever man approaches them with prayer and propitiation. For the Hindu mind, there is no doubt whatever that no crucial antagonism exists between the personal and impersonal concept of one and the same suprahuman entity. Personalization is a matter of purpose and convenience in

ritual and practice; it is an approach intrinsic in the magic-working and devotional attitude of priest and worshipper, and one appropriate to its ends. The divine powers, however, lose nothing of their dignity through being treated as impersonal entities or energies, whenever this aspect of their essence suits abstract thought and speculative contemplation. This twofold aspect of the suprahuman powers in man and the universe is fully developed in Vedic philosophy.

Nor is there a break, in this respect, between the attitude of Vedic antiquity and that of classic Hindu medicine, though in the latter the main constituents of the human body are treated primarily as elements instead of being addressed as divinities. Here, too, they are personified whenever it suits the purpose and situation of healing, that is, wherever medicine resorts to the irrational forms of suggestive treatment through magic as an indispensable supplement of rational procedures.

Generally speaking, medical thinking, in analyzing man and his environment, in diagnosing diseases and prescribing therapies, sticks to a scientific non-theological view of the entities and energies concerned. Yet such a view is not at variance with

the traditional habit of personification suitable for magic purposes; it has merely tended to become the most appropriate means of representing an enormous amount of factual knowledge with its theoretical superstructure. Through a uniform interpretation of experience it permits strict systematization. The heritage of antiquity, however, persisting in the atmosphere of daily devotional practice, is easily traced in the sacred epithets and characterizations of the principal forces which animate the human body.

The doctrine of the human body, as well as the greater part of diagnosis and therapy, in classic Hindu medicine, are based on the concept of certain principal constituents or elementary substances (dhātu, doṣa) which pervade the organism and maintain its functioning. In nature and function these are akin to the " humors " in Greek medicine.

The three humors, wind, bile, and phlegm are the basis of the existence of the human body (Su. I, 21).

They are understood as the three microcosmic representatives of the three divine universal forces, wind, sun and moon, respectively:

The moon pours down renewal of the sap of life;

the sun by its draining rays withdraws this sap from the creatures; the wind moves to and fro in various directions. Thus they support the body of the universe. In like fashion, the antagonistic activity of phlegm, bile and wind supports the microcosm.

Residing and functioning in the body, these three manifestations of the cosmic life-force share in it in the following way:

The main abodes of the humor wind are the hips and the abdomen. Above the hips and the abdomen is the "receptacle of digested food" (pakvāśaya: the upper intestines). In the middle of this receptacle is the abode of the humor bile. Situated higher up is the "receptacle of undigested food" (āmāśaya: the stomach), which is the main abode of phlegm.

When the three humors reside undisturbed in their three proper abiding places, the organism is supported by them, as a hut is supported by three pillars. Hence, some call the body the "three-pillared one." When they are disturbed, they bring about the destruction of the body.

The blood (rakta, śoṇita) is reckoned as the fourth among the humors. These four are indispensable constituents of the body in its coming into being, maintenance, and decay. There is no organism destitute of phlegm, bile, wind, or blood; the body is constantly supported by these four.

Actually the concept of the three humors, wind, bile, and phlegm, implies much more than a formulation explaining the presence of the airy, bilious, and mucous matter found in certain parts of the body. The three humors represent the aerial, fiery and liquid forms of life-energy, wherever these may manifest themselves in the organism.

Suśruta describes their activities as follows:

The wind, by moving along its own vessels, effects the unobstructed functioning of all kinds of processes, provides for the working of the intellect unharmed by confusion and delusion, and produces various other wholesome conditions. The bile, by creeping along its own vessels, brings about radiance, appetite, brilliance of the digestive fire, sense of well-being, freedom from illness, and various other wholesome conditions. The phlegm, by moving along its own vessels, effects the lubricating of the limbs and the firmness of the joints; it is the source of strength and elation and of various other wholesome conditions. The blood, by moving along its own vessels, cleanses the humors and ingredients of the body, bestows color, effects the sensations of touch, and produces other wholesome conditions. When the humors grow upset and incensed, there arise various diseases out of their very substance, while the humors keep to their own respective vessels. Moreover, some vessels carry not only

one of the humors but a mixture of all of them. When the humors become agitated and increased and run along, they overflow their channels and intermingle (Su. III, 7).

The three humors are, as it were, three rich individualities with markedly antagonistic characters. They are full of personality and behave like human or divine beings. When they grow "incensed" or "infuriated" (prakupita), they cause havoc in the body by invading the domain of the others. It needs much skill to appease them again, to reduce them in their excess, to quiet them down in their violence.

Such concepts are the offspring of a pre-critical period of thought when observation and imagination combined for the purpose of unveiling nature's secret ways. They sprang from the same source which brought forth the impressive symbolical figures of astrology in the West, for instance the idea of the essence of Venus or Mercury which manifests itself in the spheres of the universe, and, simultaneously, in man's organism, character and destiny. Western alchemy and kindred esoteric teachings in European tradition up to the end of the 18th century are formed along the same pat-

tern of thought which engendered the Hindu concept of the humors.

Gustave Flaubert, in his satirical novel *Bouvard et Pécuchet,* enjoying a jest at the expense of contemporary medicine, points out: "la physiologie c'est le roman de la médecine." Hindu physiology unfolds like a spectacular romance of the three humors, with their quarrels and appeasements, aggressions and defeats. This triad is able to collaborate, thanks to the dissimilar nature of its members. The wind is dry, light, cool and possessed of motion; the bile is hot, sharp and liquid; the phlegm is mild, cool, heavy and slow; each has its own share and its proper task in the maintenance of the body. As long as they hold one another in check through a proper balance, all is well; the life-process and all the activities of the metabolism go on smoothly.

Phlegm (śleṣman, kapha, balāsa), according to Suśruta (I, 21), has its origin and principal abode in the stomach. It is mild and cool, white and heavy, sticky and slippery. It imparts moisture. Its taste is sweet, when not burnt by the internal heat of the digestive fire; when subjected to excessive heat, it turns salty. It is of watery consistency

and the food in the stomach is thoroughly moistened by its action, split up into particles, and prepared for the cooking-process of digestion in the upper intestines.

Originating in the stomach, phlegm spreads throughout the body and maintains it through its moistening effect. Its energy is particularly active at five minor centers, supplied from the main center in the stomach. Phlegm, residing in the chest, " holds together the trunk between the shoulders (trika) "; phlegm supports the heart, the central organ of mental, emotional and vital processes, through the energy contained in chyle, proceeding from food; phlegm has its place also in the tip of the tongue and in the throat and makes possible the perception of tastes; residing in the head, phlegm lubricates and refreshes the sense-organs, activating them with its energy. In the joints all over the body, phlegm serves through its adhesive quality to hold them together. " As a wheel, when its axle is lubricated with oil, turns smoothly, so the sinews work smoothly when combined with phlegm " (Su. III, 4).

Bile is hot and fiery, wet and fetid (pūti). Its color is dark blue and yellow, it has an acrid

flavor. Bile is the only substance in the body which contains heat (Su. I, 21). All parts of the organism showing warmth are pervaded with bile. Its main abode is the "receptacle of 'cooked,' that is digested, food" (pakvāśaya), the upper intestines. There, bile cooks or matures the food, as the kitchen fire cooks food, and the sun matures crops and fruits. "Food and drink which have reached the belly are dried up and drained by the glowing heat of the humor bile and are digested in due time" (Su. III, 4).

This process of internal cooking is "imperceptible": bile extracts the energies of food in the form of chyle (rasa) and humors, and causes these energies to be irradiated throughout the body; while the refuse, urine and faeces, pass to the lower intestines, to be expelled by the motor-force of the wind.

The intestinal fire residing in the belly, the "cooking fire," and the humor bile, are one and the same force. There are five minor centers, wherein the humor bile is especially active, all fed from its main abode in the abdomen. Bile resides in the liver and spleen. There it imparts the characteristic red, fiery color to the substance of chyle,

which is at first colorless when extracted by the cooking process. Hence, bile in both these organs is called the "reddening" fire (rañjaka); and chyle, reaching its first stage of transformation, is in this way turned into blood.

Bile, moreover, abides in the heart as the fire which effects desires and longings; hence it is called in this case the "effective" fire (sādhaka). Furthermore, bile resides in the eyes, as the fiery energy which seizes upon the colors and shapes of the sense-objects. In this function it is called the "beholding" fire (ālocaka). Finally, pervading the skin, bile acts as the "irradiating" fire (bhrājaka). Its heat manifests itself in the warmth of the body, it anoints and lubricates the skin, producing its luster and complexion.

Acting as the digestive fire, the flame of bile is regular or fair, when the three humors are properly balanced. An excess of wind renders its flame uneven or irregular. It subsides when inundated by an excess of phlegm; through an abnormal increase of bile its action is unduly heightened. All these deviations are apt to produce diseases involving the various humors (Su. I, 35).

Phlegm, functioning within the microcosm of the

human body, represents the mild and cool, milky and nourishing substance of the moon which feeds the vegetable and animal realms of the macrocosm. Bile, on the other hand, is the microcosmic form of the Fire-god, which manifests itself as the sun in the firmament and, at the same time, as the sacred domestic fire on the house-altar. Suśruta states (I, 35):

The Divine Lord Fire (bhagavān Agnir īśvaraḥ) abides in the belly, cooks the food and extracts its essence. Owing to the extreme subtleness of his nature, he cannot be watched while at work. He is guarded and blown upon by three winds, "blowing forward" (prāṇa), "blowing downward" (apāna), and "blowing together" (samāna), each of which abides in its own place.

Wind as a constituent (dhātu) of the body is described as follows (Su. II, 1):

The Supreme Divine Being who is self-existent (svayambhū bhagavant; the divine essence of the universe which becomes manifest in the trinity Brahmā, Viṣṇu, and Śiva), is called the "Wind." Because he is sovereignly self-dependent, ever-lasting and all-pervading, he is the Universal Self of all beings (sarvātman), worshipped by all spheres of the world. He is the cause which produces the origin, existence

and destruction of the transitory living beings. He is imperceptible and undetermined, perceptible however through his actions.

He is rough and cool, light and sharp. He moves horizontally and is endowed with two of the three primeval qualities (guṇa) of the universal substance, namely with perfect purity (sattva) and violent motion (rajas). The quality of violent motion prevails with him.

His strength is inconceivable. He leads the constituents of the body and is the king of the host of diseases. His actions are swift. He moves incessantly.

His main abodes are the abdomen and anus (guda) and the upper intestines (pakvādhāna, the "receptacle of 'cooked' food").

Now attend to his features as he moves about the body in various directions:

The wind, as long as he is not irritated or incensed (prakupita), effects evenness and balance (samatā) among the constituents of the body and an even-burning process of the bodily fire. It effects the attainment of the sense-objects through the sense-organs, and starts the processes of the organism in their proper directions.

As the fire in the universe is divided fivefold with respect to its names, locations and functions,[6] so the wind also, being one, is divided with regard to names, locations and functions.

The five winds (māruta) abiding in particular locations keep the living being going. They are:

1. the "prāṇa"—"breathing forward"
2. the "udāna"—"breathing upward"
3. the "samāna"—"breathing together," concentrating breath
4. the "vyāna"—"breathing asunder," diffusing, distributing breath
5. the "apāna"—"breathing downward."

The wind moving in the mouth or face (vaktra) is called "prāṇa," "breathing forward." It upholds the body. It causes the food to enter and supports the other forces of the life-breath (prāṇa) of the body. When upset it causes hiccough, asthma, and similar afflictions.

The excellent wind which is called "udāna," "breathing upward," moves upward. Its effects are speaking, singing and similar actions. It causes especially the diseases which affect the body above the collar bone.

The two winds, residing in the head and the throat, are the only breath-forces ruling the upper part of the body. It is of especial interest that neither is in any way related to the respiratory process. It is not their function to provide the lungs with air or oxygen. The striking insignifi-

cance of the lungs in the Hindu concept of the organism will become apparent later.

The wind "samāna," "breathing together," the concentrating breath, is closely associated with the central fire of the body. It moves in the "receptacle of raw food." There, in the stomach, it assists in the cooking of the food and separates its various ingredients. When irritated, it causes morbid swellings in the belly (gulma), accumulation of fiery heat, dysentery and similar diseases.

The wind "vyāna," "breathing asunder," the diffusing breath, moves along the entire body. Its work is to carry the chyle (rasa) and to distribute it to all parts of the organism. It causes the sweat and the blood to flow. Thus it moves along five courses, the trunk and the four extremities. When it grows angry, it causes diseases affecting the whole body.

The wind "apāna," "breathing downward," resides in the abdomen (pakvādhāna, the "receptacle of 'cooked' food"). In due time it effects the relief of the bowels. It expels downward faeces, urine, semen, the foetus and menstrual discharge. When incensed, it causes dreaded diseases, affecting the bladder (vasti) and the anus (or abdomen: guda). Affections of the semen, however, and urinary diseases originate, when both vyāna and apāna become incensed. If both grow infuriated simultaneously, they will certainly rend the body asunder.

The power of the wind is paramount, in so far as it effects all sorts of movement in the organism, voluntary and involuntary. The wind pervades the whole body; in the manner of a pneumatic dispatch system, spreading throughout a town, it delivers all kinds of messages, materials and impulses from one part to another. By and large, its widely ramified network compares to the nervous system. Hindu authors frequently render "diseases of the wind" as "nervous diseases." When a person is wounded and bleeds to death, he is supposed to suffer a fatal loss of the vital air of his body. Conversely, the umbilical cord of the new-born baby is most carefully tied, lest the wind get into the child's belly, causing it to swell.[7]

However, and this is one of the most interesting features of the Hindu doctrine of the body, the wind is in no way related to the lungs, nor are the lungs specifically related to the process of breathing. Instead, the lungs are considered the principal residing place of the watery substance in the body. It is in the chest, containing the lungs, that the humor phlegm stays, issuing, when disturbed, in the form of expectoration.

The wind is centered in the lower part of the

body. The two winds which reside in the upper part, prāṇa and udāna, effect functions belonging to their sphere: the swallowing of food, the uttering of speech, singing, and so forth. Not a particle of either kind of wind is thought to go into the region of the lungs, supplying the body with fresh air from without. The very terms, " blowing forward " and " blowing upward," denote that the inhaling function, in both cases, is considered of minor significance or none at all, compared to the outgoing and exhaling function. Inhaling seems to be regarded somehow as an indispensable, rhythmical movement of contraction which allows for the subsequent effective activity of these breath forces in expanding.

The prāṇa, blowing forward, is said to support all the other life-breath forces of the organism. It is " at the head " of the others (mukhya). With a person about to die, its outflow, while it lasts, indicates that some life-force is still left in the body. Man's last breath, in India as elsewhere, is considered to be an expiration with which the force of life-breath departs from the body, leaving it inanimate.

According to the Hindu concept, the wind,

"blowing forward," may be visualized as a sort of invisible tongue or column of a subtle airy substance. Attached to the inside of the mouth, it rhythmically slips through the lips, a ribbon alternately coiling and uncoiling, or protruding and withdrawing, curling in upon itself like the tongue of a chameleon.

The tradition of Haṭha-yoga furnishes exact measurements of the various lengths of the protruding air-column of prāṇa during the various activities of the organism. Its normal extent is twelve fingers' breadth (aṅgula: the twelfth part of a span or vitasti); in sleep, the outgoing breath extends sixteen fingers' breadth; while eating, twenty; and while walking, twenty-four. In deep sleep its length increases to thirty, and during sexual intercourse, to thirty-six fingers' breadth.

This rather fanciful speculation on the varying intensity of the exhaling breath is based upon the prevalent conception of the vital element of wind as a subtle substance essential for the body. In so far as it is centered in the mouth and throat, it is normally in constant motion, flowing out and back alternately. One of the special accomplishments of yoga training is to gain control over the natural

rhythm of this spontaneous process of extruding and withdrawing the vital substance of wind. To reach the point where the tidal flux of exhaling and inhaling is put to rest is thought to be the final achievement in yoga breathing technique; then the breath is definitely withdrawn to its inner source and is retained there for a prolonged period of quietude. The benefit derived from this proficiency, according to Haṭha-yoga teaching, is the achievement of complete quietude and the unruffled clarity of the mirror-like mind, which is only possible when the breath is wholly at rest, a stillness which allows for unbroken, perfect concentration on the object of inner realization.[8]

Moreover, there is yet another archaic idea underlying the effort to master and stem the tidal flux of breath by conquering the natural compulsion to exhale. Command of the secret of keeping the vital breath within the organism, indefinitely and at will, would imply the power to prolong life as well. The master-adept of yoga, who has overcome the need to exhale, would be free to postpone the hour of breathing his last. The "supreme divine being," the vital force, might never leave his organism.

It is against the background of the archaic ideas of yoga, which are fully alive in all periods of Hindu thought and form a principal element of spiritual pursuit, that the ideas of Hindu medicine on the character of the humor wind must be viewed. Only in this way may their strange, particular meaning be ascertained, the meaning consistent with Hindu tradition.

The prāṇa is noticeable in its flow and warmth. Only the way in which it acts can be observed; but it does not palpably effect any exchange between the air within the body and outside. The neglect of the lungs in Hindu physiology is the more striking, if one considers the traditional fame of breathing technique in yoga tradition, this fascinating bequest of Mother India to modern man that urges him on in new directions of psychic experience, if not toward a revolution of his outlook on the meaning of life and man's essential nature.

Yoga is centered in the control of breath (prāṇāyāma). Breathing exercises are instrumental in increasing health and longevity; in practising concentration by focussing on inner visions; in putting the mind to rest through absorption of thought into the object of deep meditation (samādhi); in

reaching a state of trance, and various stages of introspective, subconscious experience. A proper technique of inhaling (pūraka, "filling up"), exhaling (recaka, "emptying, leaving") and storing the breath (kumbhaka, "keeping it in the body as in a pot"), along with a system of gymnastics and postures suitable for meditation (āsana, mudrā), is the indispensable requirement for classic achievements on the spiritual plane. These breathing techniques are, on the physiological level, the foundations of the highest, time-hallowed experiences on the path to fulfilment: the mystic union with the divine and the realization of what is taught to be the transcendental Self, forming the innermost core of man's existence.

However, the treatises of Haṭha-yoga, though emphasizing the physiological side of yoga technique, contain no reference to the lungs and their activity. The very term for the lungs, "kloman," is absent from the terminology of these texts.

The "Summary of the Essence of Yoga" ("Yogasārasaṅgraha") by Vijñānabhikṣu (second half of the 16th century) describes the space for inhaling (pūraka) as extending "from the skull above down to the soles of the feet." Here, the

sensation one may have in practising deep breathing, namely that the body gets filled with air to the very extremes of the limbs, is taken for a fact; it is believed that this is what actually happens when one inhales deeply: that the vital force of deeply drawn breath is not confined to the trunk, but permeates every particle of the organism from the cranium to the soles. That the breath-force enters the remotest corners of the body, to the Eastern mind, seems to be indicated by the tickling sensation it produces, " ants running over one's limbs." The ancient Chinese teachings on the breathing of Taoist saints and ascetics hold a similar view, advising that one should " breathe with one's toes."

The exhaling function, according to Vijñānabhikṣu, extends over twelve fingers' breadth from the tip of the nose. One may ascertain this activity of the breath through its effect on the bristles of a brush or on a tuft of cotton wool, held at that distance.

The perfect, that is, the " pure and isolated," the " entire " and " self-contained " (kevala) way of " storing the breath " (kumbhaka), achieved only after a long period of persistent training, consists in doing away with " filling " and " emptying,"

inhaling and exhaling, altogether; the vital force of the life-breath (prāṇa) is put to rest at will. Nor are at this point the sensations, by which inhaling and exhaling are noticed, experienced any longer by the accomplished adept. He has reached a state of elation where nothing appears to be unattainable.

These particular notions about the breathing process are based on actual experience in yoga practice; they form the empirical background for the Hindu theory of breath and breathing. Prāṇa pervades, enlivens and governs the microcosm, just as its great counterpart, the divine Lord Wind, fills and rules the body of the universe through its incessant motion. Prāṇa protrudes before the gates of nose and mouth, and it can be trained to fill various parts of the organism. The activity of the lungs is ignored. Instead, all yoga doctrines and yoga Upaniṣads referring to breathing have one theory in common, that there exist two channels which start at the two nostrils and go downward to the lower end of the spinal column, crossing one another and entwining the backbone.

These two passages are called "Iḍā" and "Piṅgalā" and are supposed to be related to the

activities of the lunar and the solar forces in the microcosm. The moon-center of the microcosm is located at the top of the spinal cord; with its milky rays it pours forth the essence of immortal life (amṛta) and serves the entire body. This enlivening sap descends through the channel " Iḍā," on the left side of the body. The antagonistic principle of devouring solar heat is supposed to be situated at the bottom of the microcosm, wherefrom its devastating force circulates upward through the organism by way of the channel " Piṅgalā " (that is, the " reddish " or " yellowish ") , on the right side of the microcosm. Both passages, " Iḍā " and " Piṅgalā," have no outlet midway, in the region of the chest or elsewhere. Their opening at the lower end lies where they meet and enter the innermost channel of the spinal marrow at the base of the backbone, the central vertical duct of the spinal cord, named " Suṣumṇā."

In a special practice of Haṭha-yoga, the " Arousing of the Coiled Snake " (śakti-cālana or kuṇḍalinī-yoga) , the adept tries to fill the two channels with the concentrated force of the breath. Through its pressure the slumbering life-force residing at the bottom of the abdomen is to be awakened. This

life-force of the microcosm is visualized in the form of a snake, coiled up in the slumber of unconsciousness. The aim of Kuṇḍalinī-yoga is to stir up the serpent of animal life-force (śakti) residing in the depths of the organism. This female principle supporting the microcosm at its bottom, this divine "She" should be forced, by the pneumatic pressure of breath, to make her way upward, to ascend along the innermost channel of the spinal cord to the top of the cranial cavity where she reaches her spiritual counterpart, the transcendental Self of the microcosm and of the universe, Śiva, the eternal Male. Thus is achieved the union of both principles, the transcendental divine Being and its equally divine life-energy which unfolds, enlivens and supports at its base the microcosm, and, correspondingly, the organism of the universe: the union of Śiva and Śakti, the divine pair. This union is believed to bring about final release from the bondage of individual existence in the round-of-rebirths, and attainment of supreme bliss.

Such a theory, describing the two channels starting at the nostrils and ending near the perineum, where they enter the spinal marrow, is not meant to convey the anatomy of the respiratory

organs. It results from experiences peculiar to the process of yoga practice; it is a picture of the inner sensations through which the master teaches the pupil how to control his efforts and to observe their effectiveness; how to direct his energy to attain what has been accomplished by earlier yogins. The concept is of the nature of a diagram or plan, which outlines the sphere of breathing exercises and of the experience of nervous reactions, the battleground of the yogin in his attainment of spiritual supremacy. Based on the visualization of inward experiences, it traces, for the benefit of the pupil, the way of approach to this recondite goal, and the means by which to attain it.

The notion of the direct descent of two channels from the nose to the base of the spinal cord could not have sprung into existence and become a generally accepted, classical pattern, had any importance been attributed in Hindu medicine proper to the lungs as a main organ of the respiratory process. The functions of exhaling and inhaling are viewed as the two most significant activities of the enlivening motor force of the wind, which animates the whole organism. From the standpoint of Hindu tradition in general, it is an odd fact that

Hindu medicine lists but five major manifestations of the all-pervading force of life-breath, while yoga lists ten altogether.[9] These ten, moreover, were incorporated in the orthodox Brahmin doctrine of Vedānta concerning the human body.[10] The yoga treatise " Gorakṣaśataka " describes them as follows (33-37):

> Prāṇa, apāna, samāna, udāna and vyāna are the winds (vāyu); moreover there are nāga, kūrma, kṛkara, devadatta and dhanañjaya.
>
> Prāṇa always abides in the heart (or chest: hṛd), apāna in the region of the anus, samāna in the region of the navel, udāna moves in the throat. The vyāna, however, pervades the whole body.
>
> Prāṇa and the other four are said to be the chief winds; nāga and the others are the five minor winds.
>
> Nāga is said to control eructation and vomiting; kūrma is responsible for the opening and winking of the eyelids; kṛkara causes sneezing (kṣutakṛt); devadatta controls yawning.[11]
>
> Dhanañjaya pervades the whole body and does not quit even the dead body.
>
> These winds or breaths, endowed with the form of life-monads (jīva-rūpin), swarm in all the tubular channels (nādī) of the body.

Four of these five subsidiary life-breaths act as motor forces controlling the involuntary reactions

of the organism. Three of them bear names of animals, because aspects of their behavior are suggested in the reactions determined by these pneumatic forces: nāga, the "serpent," with undulating, rolling movements, causes vomiting and eructation; kūrma, the "tortoise," extending its limbs and head from underneath its shield and withdrawing them again, effects the winking, casting up and closing of the eye-lids; kṛkara, the "partridge," causes sneezing which sounds like the noise made by this bird.

The remaining two winds are named after mythical conch-shells, which, as is true of the Tritons in Greek mythology, serve as horns or battle-trumpets.

One of these, Devadatta, is believed to control yawning. The conch-shell Devadatta is a magic attribute of Arjuna, the chief hero of the Mahābhārata epic. He received it as a boon from Indra or other gods, whence it is named "god-given." Another possibly older tradition makes it a gift of the titan Maya, who was conquered by Arjuna, but was spared his life.

Likewise Dhanañjaya, the conch-trumpet of the god Viṣṇu, is a trophy gained by him in conquering

a titan dwelling in the depths of the cosmic water. In his first avatār, as a giant fish, Viṣṇu dived into the deep sea to rescue the divine wisdom of the holy Four Vedas, which had been carried away from the demiurge-creator, Brahmā, by a demon of the ocean. In slaying the demon, Viṣṇu gained his armor and dwelling place, the conch-shell, as a trophy; this later served him as a battle-trumpet, signalling rich booty, whence its name: " winning riches." On the other hand, " Dhanañjaya " is among the names of the chief kings of the serpents (nāga), the lords and genii of the watery realm; and, as such, presumably it was once the name of the conquered sea-demon himself. Since water stands for the life-fluid of the universal organism, and the ocean represents the primeval life-substance from which creation proceeded, " Dhanañjaya " is a name of mythical origin appropriate for describing the vital energy which pervades the life-substance of the body and does not quit it. This aspect of energy remains, even when the incorporeal life-principle (jīva, the life-monad; or ātman, the Self) leaves it, together with the faculties of the psyche, the senses and the vital breaths. The very subtle idea of a strictly corporeal life-

principle inherent in the substance of the body and surviving the separation of body and psyche, the idea of a life-substance, itself endowed with a soul, is one of the remarkable conceptions which presumably go back to pre-Aryan antiquity. This concept, however, was lost from the medical lore of brahmanized Hinduism, which failed to appreciate it and to pass it on. While it was retained in orthodox traditionalism (Vedānta), it was omitted from the medical doctrine of the human body together with the four other subsidiary breath-forces.

The elaborately and imaginatively described functions of the breath-powers and life-centers, with their metaphysical and mythical connotations in Kundalinī-yoga, bear the same archaic character and evidently refer back to the old stock of pre-Aryan or non-Brahmin tradition. They have a striking parallel in the idea of the macrocosm in Jaina tradition, where the universe is believed to have the shape of a Great Man, a giant human organism: a male being, the cosmic man (puruṣa) of older tradition, or the all-embracing body of the world-mother of later sources. Jaina tradition, in this respect, though biased by ascetic tendencies, constitutes the most faithful reflection preserved

by history of what formed the basic conceptions with regard to man and the universe in the ancient pre-Aryan civilization of Northwestern India.

At first sight, it seems difficult to imagine that Hindu classic medicine should have agreed entirely with the archaic concepts evolved from pre-Aryan yoga technique; it is equally hard to conceive of a theory concerning the function of breathing which completely ignores the lungs. Yet this must be recognized as a fact.

The very word for "lungs" (kloman), in the medical encyclopedias, is conspicuous for its rare occurrence, one could almost say for its absence, in spite of the fact that the texts deal at length with consumption and similar diseases. Pulmonary consumption is significantly termed "Śosa," "drying up." In destroying the lungs it is believed to assail the principal seat of the watery matter in the organism, drying up the humor phlegm in the course of its progress; for phlegm, residing in the chest, "holds together the trunk between the shoulders."

Jolly's survey of Hindu medicine reveals the peculiar disregard in which the lungs were held

by Hindu medical tradition. It deals exhaustively with the contents of Caraka, Suśruta and their successors, and its index registers all the Sanskrit terms occurring in its ninety-two sections. Among the items of this index, amounting to more than fourteen hundred, the term "kloman" does not appear at all,—a most significant omission, which the circumspect author failed, however, to notice. Indeed, the fact that Hindu medicine and yoga teaching did not attribute any importance to the lungs has not hitherto drawn the attention of anyone dealing with these matters.

Nor is the insignificance of the lungs in Hindu medicine an isolated fact. A similar misconception prevailed with respect to the brain. Nothing was taught about its functions. There are chapters on the head, dealing with diseases of the mouth and the sense organs, a chapter on different kinds of headache caused by heat, cold, smoke, or sun, but no notion seems to exist of diseases of the brain. Functions, which modern psychology and anatomy attribute to the brain, are said to reside in the heart.

The heart, says Suśruta (III, 4), is called the abode of consciousness (cetanā, the thinking sub-

stance and function). The heart is like a lotus-flower, with the opening of its calyx turned downwards. It opens its blossom when man is awake, and closes it when man is asleep.

This view reflects the introspective self-awareness of archaic man, similar to the introspective sensations reflected in the diagram of the two breath channels in Haṭha-yoga tradition. Archaic man is not inclined to listen to his brain to the same extent that modern man endeavors to do, at any rate in his rational activities, business, administration and science. Archaic man has not yet undergone to the same extent the process of cerebralization, which leads to a predominantly conscious intellectualism. Modern man, following traditional belief, localizes his emotional functions in the heart; "brain-waves," however, tell him where to localize his reason. For more primitive thinking, as it still lives on in millions of people and as it lies hidden in everybody, ready to emerge whenever stimulated by violent passions, the thinking function is much nearer to the center of emotional functions and more apt to be influenced by emotional waves. The thinking of the primitive man—and in this respect the Hindu is nearer to

the archaic, the primitive type—has not yet become abstracted from the center of feeling to the extent that is reached later with the intellectual type through long training in critical self-control. He is more inclined to feel that his thoughts and decisions rise from the emotional sphere of his organism, that is, from his trunk. The gods and heroes of Homer still think and feel with their diaphragm. In the same way, a Pueblo chief, discussing psychology with my eminent friend, Dr. C. G. Jung of Zürich, explained to him, " I know you white men think with the brain. That accounts for your shortcomings. We red men think with the heart."

It is more than sheer ignorance of what modern man considers the " real " functioning of certain vital parts of the human organism that shaped the archaic conceptions of Hindu medicine differently from the findings of the science of today. Primitive psychology and physiology, working introspectively and intuitively, also have their share in these concepts. Though seemingly clad in rationalistic language, these concepts are meant to be read as a pictorial script. In anatomical terminology they describe inner sensations which were

visualized again and again until they became a classical pattern satisfying common experience.

This applies also to the speculations concerning the tubular system of the body which is said to be centered around the heart or the navel. Such a concept is the visualization of archaic physiological experience, guided by speculative ideas, rationalized and systematized through geometrical symmetry and correspondence of numbers, and expressed on the anatomical plane. It is a kind of theoretical interpretation or sophisticated superstructure, covering introspective intuitions.

Caraka's description of the vascular system (VI, 5) shows the impact of speculative schematization which prevails, while anatomical observation through dissection is absent:

There are as many kinds of vessels in the body as there are different substances in it. Substances or processes do not come into existence, or cease to be, without their proper vessels. The vessels carry the ingredients of the body as they undergo transformation; they serve as passages for their circulation. These vessels are extremely numerous, hence, as some teachers say, they are countless; other teachers, however, say that the vessels can be counted.

The vessels carry the force of life-breath that is

rooted in the body (prāṇa)); they carry water and food, chyle and blood, and the transformations of the latter, namely fat, bone, marrow and semen. They carry urine, excrements and sweat.

Besides, they carry the humors, wind, bile and phlegm, which travel through the whole body. All the vessels which pertain to the other substances of the body also serve as passages for the humors.

The root, or main vessel, from which the vessels carrying the life-breath spring, is the heart.

The root from which the vessels carrying water spring, are the palate and the lungs (kloman). Dryness of the tongue, palate, lips, throat and lungs, and excessive thirst indicate that the water-carrying vessels are injured.

The roots of the food-carrying vessels are the stomach and the left flank. Lack of appetite, nausea, indigestion and vomiting are symptoms that these vessels are harmed.

The roots of the vessels carrying chyle are the heart and ten tubular vessels (dhamanī); the roots of the blood-carrying vessels are the liver and the spleen; the roots of the vessels carrying flesh are the tendons and sinews (snāyu), and the skin; the roots of the vessels carrying fat are both the kidneys and the omentum (vapāvahana); the roots of the vessels carrying semen are the testicles and the male organ; the roots of the vessels carrying urine are the bladder and the groins; the roots of the vessels carrying excre-

ments are the upper and lower intestines (pakvāśaya and sthūlaguda). The roots of the vessels carrying sweat are the fat (medas) and the hair follicles of the skin.

When these vessels grow irritated, the constituents of the body which abide in their places or move along their ways grow irritated, too. This irritation spreads from one kind of vessel to the others. Vessels harm vessels, and constituents harm constituents, when irritated. Wind, bile and phlegm, however, harm and irritate all other constituents; they are " harmers " (doṣa) by nature.

Suśruta's description of the vascular system shows a rather different pattern. The coexistence of both systems side by side in classic tradition points to the fact that the means by which to verify their individual value was lacking, even at the period of Suśruta.

Suśruta describes the system of tubular vessels as follows (III, 7):

There are seven hundred tubular vessels. As a garden or a rice-field is irrigated by a system of canals carrying water, the body, by means of these vessels, is moistened and maintained; this is accomplished through expanding, contracting and other movements. Their ramifications compare with trees, foliage, and conduits.

The root from which they spring is the navel. From the navel they go upward, downward and transversely. All tubular vessels of the body are fastened to the navel; thence they spread all round. The vital forces, associated with the life-breath (prāṇa) of animate beings, abide in the navel. The navel is surrounded by the tubular vessels (śirā), as the hub of a wheel is surrounded by spokes.

According to Suśruta the three humors and the blood share equally in the seven hundred vessels, each of them being provided with one hundred and seventy-five. These vessels carry the three humors into their proper abodes, and the blood into the liver and the spleen. There are ten major vessels (Mūlaśirā) in each of these four groups; in addition, there is a uniform pattern, showing the distribution of the hundred and seventy-five vessels over the various parts of the body.

Of these hundred and seventy-five vessels, a hundred are assigned to the four extremities; twenty-five to each arm and leg respectively. Of the remaining seventy-five, forty-one are located above the collar bone, the other thirty-four belong to the trunk. Of those in the head and neck, fourteen are found in the neck; four in the ears; nine in the

tongue; six in the nose; eight in both eyes. Of the thirty-four located in the trunk, ten form part of the chest, six serve the back and six the belly; two are found in each side, eight in the loins, attached to the anus and the genital organ.

This distribution applies equally to the four constituents of the body, wind, bile, phlegm, and blood, regardless of the prevalence of one or the other of them in the upper, middle or lower part of the trunk. In this abstract scheme attention is paid, however, to the specific energy of the bile localized in the eyes, since it is assumed that ten vessels carry bile in the eyes, instead of eight, as is the case with wind, phlegm, and blood respectively; these ten vessels serve the activity of bile in imparting lustre and energy to the eyes.

In spite of the outstanding value which Suśruta attributes to anatomy as a means of investigating the structure of the body, no efficient method for shaking off the highly abstract patterns of traditional belief came to the fore; conservative speculative thought was not to be challenged seriously by progressive empiricism.

Anatomy, though assigned first rank as a means of investigating the structure of the organism, evidently proved of no great avail in clearing the complex concepts of the vascular system and its processes from the hazy atmosphere of speculative thought. What, then, were the actual achievements and limits of anatomy, when, as part of surgery, it became integrated into the body of medical wisdom? What were the chances, what the limitations of its growth set by the pattern of Hindu thought and life?

When Vesalius on the basis of his own experience with dissection found that Hippocrates held more correct views on the human organism than Galen, Western medicine awoke from its mediaeval torpor and moved away from Galenic traditionalism toward its unique achievements. Indian physicians, from the time that Suśruta had gained the reputation of a classic, agreed with Vesalius, at least in principle, that anatomy, securely based on autopsy by dissection, is requisite for true medical knowledge. In practice, however, Hindu anatomy was utterly unable to rise to the achievement one might have expected from the keen interest of the Hindu in the structure of the human body. Its chances

were crippled by the more urgent claims of daily hygiene which, due to the subtropical climate, took precedence in the shape of moral injunctions and superstitious apprehensions that were propagated with emphatic authority.

The fact that, like the invading Greek and Nordic tribes of ancient Europe, the Aryan immigrants of the second and first millennium B. C. came to India from a cooler climate, where other conditions prevailed, should have given rise to an adequate knowledge of anatomy as time progressed. Cattle-breeders, and therefore beef-eaters, they butchered cattle with a fair knowledge of the organism. Their priests sacrificed cows and other animals. The horse-sacrifice, a relic of their former nomadic life in the plains of Middle and Northern Asia, with its elaborate ritual was practised along with the human sacrifice. The latter, though it became obsolete, is proved to have formed part of the ancient Aryan religion. Besides, the Aryans liked hunting. In properly dissecting and eviscerating cadavers, in determining the organs and in knowing their exact positions, priests, butchers and hunters should have been the best pace-makers of future anatomy and surgery. Unfortunately, how-

ever, their practices gradually fell into disrepute, since through a slow but relentless process the recent immigrants were merged in the complex system of pre-Aryan civilization.

In its own traditional style of life, this system represented a remarkable achievement in the adjustment of man to the peculiar perils, inclemencies and trying circumstances of subtropical climate. The fair prospects of a comprehensive scientific anatomy were wrecked by the overpowering conditions of the environment which had shaped the morals and daily routine of the natives and which forced even the conquerors to abandon their own way of life.

A rice-growing civilization of a somewhat gentle, feminine character, favoring a maternal order, taught the masculine and war-like Aryan beef-eaters vegetarianism as the only diet proper for all higher spiritual pursuits; killing animals, harming living creatures, injuring even a malignant insect (hiṁsā) were regarded as the worst of sins. Thus the eating of meat and the sacrifice of animals came to be depreciated. Butchers, even shoe-makers, working on the hideously unclean hides of poor slaughtered cattle, ranked as defiled, low-caste

people. Hunting, though still indulged in by kings, was no general sport, as it is in other countries to this day. It remained the cruel and impure profession of hunting tribes in the wilderness, of aborigines in the backwoods, outside the compass of the respectable Hindu civilization and its village borders. Ancient pre-Aryan ethics, remodelled according to Buddhist teachings, and handed down from antiquity through the ascetic community of the Jainas, came again triumphantly to the fore with the spread of the Buddhist doctrine in the last centuries B. C.

The emperor Aśoka, in the third century B. C., a leader in voicing this attitude, admonished the subjects of his vast dominions carefully to avoid the killing of living beings. He set an example in his own diet, banning meat dishes almost completely from the sumptuous royal kitchens. In his admonitory proclamations, inscribed on pillars and rocks all over his empire, he states that meat courses have been abolished from his august diet, which allows for the slaughter of only one peacock each day. The peacock (mayūra, mora) evidently constituted a kind of magic food of the dynasty, called after this bird the Maurya- (or Mora-)

dynasty. It seems that it was necessary for symbolic reasons that the emperor feed upon this bird, the mount and animal-representation of the war-god Skanda-Kārttikeya of pre-Aryan origin; the flesh of the peacock presumably was believed to contain the very substance which had the peculiar power to sustain the energy of the warlike nature of the imperial family; " and even this peacock," the emperor Aśoka boasts, having turned Buddhist and pacifist after sanguinary conquests, " even this peacock is no longer killed every day."

The immigrant Aryans practised the burial of the dead. Subtropical hygiene requires a hasty and rather unceremonious disposal of the dead, which does indeed prevail on the Indian cremation grounds even to this day. The infectious, defiling substance of the corpse, reaching quick decomposition, could be handled only by the most impure class of human beings, the Cāṇḍālas, defiled by their very descent and way of living; these, in attending to the funeral pyres, could not incur any additional pollution by handling inauspicious matter. In view of the difficulties of the subtropical climate, and the complete absence of any device for preserving easily putrifying matter, in

view of the strict rules on avoiding contact with any defiling substance, enforced by severe punishment and involving possible expulsion from one's caste, it seems incredible that any anatomy at all could have sprung into existence. It had to fight against all the rules of archaic hygiene, couched in superstitious warnings about threatening hosts of malignant monsters and demons. An approach to research concerning the structure of the human organism comparable to that celebrated by Rembrandt's painting should have been quite impossible for Hindu students. Yet it did exist to some extent, and was practised, though stealthily, according to an ingenious method taught by Suśruta (III, 5):

This accurate account of the parts of the body, extending as far as the skin, is not to be found in any other part of medical teaching, but only in the doctrine of surgery. Therefore the surgeon in seeking a thoroughly reliable knowledge must duly prepare a dead body and carefully ascertain its parts. For by putting together what he perceives with his own eyes with what he has learned from valid tradition through textbooks, he will increase his wisdom.

For this purpose one should select a body which is complete in all its parts. It should be the body of

someone who had neither been excessively old, nor one who died of poison, nor of a protracted disease. Having removed all excremental matter from the entrails, the body should be wrapped in rush or bast or grass or hemp, and placed in a (reed-or wicker-) cage. Having firmly secured the latter in a hidden spot, in a river with a strong current, the body should be allowed to decompose. After an interval of seven days the thoroughly decomposed body should be taken out and very slowly scrubbed with a whisk made of grass-roots or hair or bamboo or bast. At the same time, every part of the body, great or small, external or internal, beginning with the skin, should be examined with the eye, one after another, as it becomes disclosed in the course of the process of scrubbing.

Since the methodical dissection of a well preserved corpse after the habit of modern research and training was excluded by the tabus of ancient civilization in subtropical India, one cannot but admire this ingenious way of working on a corpse without touching it,—on a corpse cleansed and decomposed at the same time by flowing water, protected by it against insects, heat and air, guarded by wrappings against fishes and worms, and concealed from men who might take offense in beholding it.

Unfortunately the time for inspection was necessarily very limited. The results to be gained by this sort of gently scrubbing asunder a soaked body on the verge of melting away, were, to weigh advantages and disadvantages, exactly what one would expect from such an examination of an object, preserved and decomposing at the same time: an almost perfect osteology, based on the bony structure left intact for unlimited inspection; a fair enumerative knowledge of the muscles, sinews and ligaments still sufficiently preserved; but no real insight into the intricacies of the nervous system, the blood vessels, or into the exact course and purpose of the various other canals and organs essential for metabolism.

Western anatomy progressed by borrowing from astronomy the lenses which had revolutionized Renaissance cosmology. Now, the instruments of macrocosmic research were used in the investigation of the microcosm. Thus, in 1641, Malpighi discovered the capillaries and demonstrated the vascular structure of the lungs. Lacking all the resources of modern optics, devoid of the inspiring example set by the methods of modern physics, Hindu anatomy was bound to remain steeped in

abstract speculation, as far as the interior of the body and the organs that carry on the life process were concerned.

Western science originated in Greece where, in the fifth and fourth centuries B. C., astronomy and physics created new methods and standards for the investigation of nature and the universe. These startling achievements brought about an atmosphere of "New Learning" in Greece. The rise of critical philosophy with the Sophists and Socrates was followed by the scientific zoology and botany of Aristotle and Theophrastus. Out of this inspiring atmosphere sprang the genius of Greek medicine, Alcmaeon of Croton, and Hippocrates, who set the pace for modern medicine as it came into being toward the end of the Middle Ages.

Medicine in ancient India as elsewhere had to face a much more unfavorable situation. Ancient Hindu astronomy, based on the lunar cycle, remained a self-contained special branch of traditional learning. With the impact of Hellenistic influence it was partly superseded by the system of Hipparchos and Ptolemy, based on the solar cycle, but there was no revolution in scientific

standards. Algebra and geometry belong to the common stock of tradition in Indian antiquity, and even at an early stage they show the remarkable genius of the Hindu for abstract reasoning and pure intuition; however, they remained isolated fields of knowledge, concerned with their special problems. They did not reach the breath-taking height at which Greek mathematics, turning its methods to the task of explaining the structure of the universe and the movements of the celestial bodies, became applied mathematics in the garb of rational astronomy, anticipating Copernicus, Galileo, and Kepler.

In Greece, under the first impact of modern thought, traditional archaic cosmology exploded, the Olympian gods shook on their thrones, doomed sooner or later to vanish away. What is more, the whole trend of archaic mythical thought became discredited, and a new era of scientific criticism and methodical research started. Greek medicine, stimulated by Alcmaeon's anatomical discoveries and method, rushed towards the conquest of a new concept of man.

Nothing comparable to this process, unique in the history of human thought, could have happened

in India. Hindu philosophy offered no help, no inspiration in this direction; bent on metaphysics, and centered upon the quest of releasing the soul from the bondage of the realm of sense, and suffering through an elaborate technique of introspective experience, it was inclined to ignore the range of empirical facts in the outer world; and furthermore, Hindu medicine was incapable of producing a revolutionary impulse out of itself, because, as is invariably true, medicine throughout its history is cautious and conservative when isolated from other sciences.

Modern medicine, in a remarkable series of revolutionary progressive steps, during the last two centuries, discarded a great number of its cherished traditional beliefs as so many superstitions; and it has derived the power for these daring transformations largely from its irrepressible urge toward new truths as they prevailed in related sciences. The startling results yielded by the general scientific progress could not but interfere with medicine's traditional conceptions and methods.

The medical man in modern times, just as in ancient India or elsewhere, if left alone, cannot help being conservative with respect to traditional

learning. In his daily routine the practitioner relentlessly and continually faces an enormous responsibility; he experiences again and again the failure of well-established treatments, as well as unexpected recoveries in seemingly hopeless cases. The many risks his practice entails every day caution him against hazardous innovations. The life of his patient is at stake, as well as his own reputation, and his professional conscience is apt to voice traditionalism.

Hindu medicine, part of a static civilization that is based on a stable conservative social hierarchy, backed by scriptural revelations and religious rules, was bound to maintain a traditional character, as did medical lore in general, wherever it was left to itself, and whenever it lacked the impact of such startling inspirations as those which, uniquely and with revolutionary vigor, determined the century of Socrates.

Still, the archaic mind is no stagnant pool, though it may lie unruffled by any movement of thought similar to that which originated in Greece. The very restlessness and curiosity which stimulate the primitive mind, urging it on to elementary empiricism and valuable discoveries con-

cerning the healing forces of nature, does not content itself with isolated findings. It endeavors to understand them by comparing their features and qualities; through a speculative process it weaves them together into a system that is logically consistent in itself and satisfies reason by means of analogies and generalizations.

The archaic mind is subtle and alert, endowed with a genius for observing facts and minute traits; it is far from being primitive, though it is often called just that by modern intellectuals. In every respect, it arrives at a stage of sophistication. Its particular peril lies in its tendency toward over-sophistication, toward becoming caught up in its own net of hair-splitting arguments, abstract distinctions and lofty generalizations.

The Hindu mind largely yielded to this temptation. There was no systematic experimental research continuously yielding startling new facts, whereby to check the speculative flight of unfounded theorizing and empty generalization. There were no closely related sciences, more advanced in methods and results, to dispel the mist of imaginary ideas which, covering up the objective facts found by intuition and experience, posed as

a true interpretation of these facts. The deceptive satisfaction which this attitude of ancient Hindu medicine afforded its adepts through its logical consistency and through the harmony of numbers, through the balance of characteristics and through corresponding patterns, gave to the Hindu doctor the illusion of real insight into the hidden connections and causations of facts, a glimpse, as it were, into the working of nature. This situation somewhat resembles that of the time when Galenic tradition in its Arabic garb was still, in the opinion of the average Western practitioner, the last word on the art of healing; yet, the Indian attitude is superior to the earlier Western one through its intuitive genius and actual command of the details of its environment.

Thoughtful imagination and abstract speculation in Hindu medical theory are the principal means by which to approach the more complex processes of the human organism, such as metabolism and generation; these processes escape exact observation, as long as effective methods remain out of reach, and these have been developed only recently by modern research.

Metabolism (Su. I, 14) sustains the vital constituents and components (dhātu) of the organism through a gradual self-transformation and refinement of the primary matter of digested food. Food, when duly digested, turns into a "very subtle essence" (parama-sūksma sāra), called "sap" or chyle (rasa); its nature is "fiery energy" (tejobhūta).

Its abode is the heart. From the heart it is distributed throughout the body by means of twenty-four large vessels (dhamanī), ten going upward, ten downward, and four transversely.

Possessed of enlivening and nourishing qualities, chyle partakes of the mild and beneficent nature of the moon (saumya). In the course of passing through liver and spleen it acquires red color and in this way is turned into blood. Thus it reaches the first stage of its transformation.

Blood originates from chyle. Then blood is transformed into flesh. From flesh originates fat; from fat the substance of the bones comes into being. The bones are the source of marrow; from marrow springs semen. Thus the essential extract of food and drink satisfies (successively) the vital components (dhātu) of the organism.

This essence drawn from food in the form of chyle turns first into blood and through a gradual self-transformation of its inherent life-bearing qualities supplies sustenance to all layers of the organism, fluid, semi-firm and solid. Through transformation from one substance into the next (in this order: blood into flesh, flesh into fat, fat into bones, bones into marrow, and so on) it becomes an ever more concentrated essence, until finally it reaches the most condensed and vigorous form of life-energy, semen.

During this course of transformation and concentration from chyle to seed, the life-energy abides in each component of the body for an equal period. It accomplishes the full cycle of refinement by turning into semen during the period of a lunar month. Conversely with women, in the same rhythm, it turns into menstrual blood which feeds the embryo.

As butter is contained in milk, and molasses in sugar-cane, likewise semen is to be found in the organism of man. As long as man is not excited, the seed exists all through the body. Infinitesimally subtle the semen pervades the whole organism, expanding through it, like sound, light or water. The drugs

meant to increase virility act in the manner of purgatives; forcibly they expel the semen (Su. I, 14).

With women, the channels of the vessels carrying the menstrual blood, after conception, become obstructed by the foetus. Hence, with pregnant women there is no menstrual discharge. Obstructed below, the blood moves upwards and accumulates and is called the afterbirth. Part of it goes still further upwards and reaches the breasts. Hence the breasts of pregnant women grow large and projecting (Su. III, 4).

The idea that semen originates from all parts of the male body is familiar to ancient Greek medicine;[12] that it is the product of the whole organism, gathered and expelled through sexual excitement, is a concept current in Vedic tradition. It is frequently stated in the explanatory texts of priestly lore, and alluded to in the ritual as well, for instance in a household rite of marital life for successful intercourse and procreation, which forms part of an archaic sacramental Kāma-sūtra. The husband, in commending cohabitation, addresses his semen, to arouse it from its dormant and scattered state, "Thou takest thy origin from every limb, thou art generate from the heart, thou art

the condensation (kaṣāya, ‘decoction, essence’) of the limbs, . . .”.[13]

Generation is termed the “descent of the germ into the womb” (garbhāvakrānti). The germ (garbha) does not proceed from the substance of the father, nor from that of the mother, either; both parents provide only for the material substratum which attracts its “descent” (avakrānti), clothing its subtle essence in earthly stuff. In this view, Hindu medicine is in full agreement with traditional belief. Suśruta describes generation and gestation of the embryo as follows (III, 3):

The male seed is of moon-like, mild nature (saumya); the (red) menstrual blood of women is of fiery nature (āgneya); but in each of them the other elements are present as well, on a minute scale; for all elements serve one another, support one another and interpenetrate one another.

With the cohabitation of man and woman the wind arouses the glowing intensity (tejas) (of the manly vigor); through the intermingling of heat and wind the seed flows forth; it enters the womb and combines with the menstrual blood.

By the union of fire (agni) and moon (soma) the life-essence (garbha, the germ) is attracted and enters the womb together with them.

The fiery solar energy and the nourishing lunar fluid, opposites whose cooperation upholds universal life in the cycle of day and night, in their microcosmic forms of semen and menstrual blood unite to form the substance of the diminutive universe, the human organism.

This material substratum becomes the receptacle of the incorporeal life-monad which " is called by many metaphorical terms " describing it as the inner ruling principle, as " he who knows the field," " the knowing one," " the touching one," " the hearer," " the tasting one," " the primeval inner man " (puruṣa), " the doer or agent," " the walker," " the witness," " the supporter," " the speaker."

This life-essence is the imperishable, indestructible and unthinkable one. By the dictates of fate it becomes shrouded in the garb of the individual self, which consists in the " subtle body," formed of the five elements (bhūtātman). Impelled by the wind, forthwith it enters the womb and abides in it. It is endowed with the primordial three virtues (guṇa) of universal matter, that is, with sattva, purity; rajas, violent motion; and tamas, dark inertia; and with various divine and demonic forces besides.

The new being, which grows in the womb,

acquires its individual characteristics through a threefold heritage: from father and mother, and from the formative and limiting forces which inhere in the subtle body shrouding the incorporeal life-monad, the indestructible self. The tangible appearance, or material body, inherits its firmer parts from the father, the softer ones from the mother:

The firm parts of the body, hair, beard, body-hair, bones, nails, teeth, vessels (sirā), tendons and muscles, tubular canals (dhamanī, comprising veins and nerves), and the seed derive from the father; the soft parts, flesh, blood, fat, marrow, the heart, the navel, the liver, the spleen, the anus and so forth, derive from the mother.

The faculties and energies which activate the bodily frame belong to the subtle body. The subtle body clings to the life-monad as the fateful consequence of actions and tendencies in earlier existences; its qualities are the result of one's deeds and thoughts (karman) during former lives in the round-of-rebirths. Together with the bodily inheritance from both parents, upon which the life-monad alights through the attraction of selective affinities, the particular virtues or deficiencies

inhering in the subtle body predetermine the life and fortunes of the being to be born; they spell his destiny:

"The sense faculties; perception and intellect; the amount of life-strength and life-length (āyus); happiness and suffering; and other such characteristics spring from the individualized self," that is, from the individualizing sheath of the subtle body, shrouding the imperishable life-essence of the pure Self and carrying the impress of the effect of deeds in former lives. "These peculiar qualities cling as residual effects to the subtle body, and determine the experience of the individual in the existence to come."

An additional share is attributed to influences from without: "growth and size of the body, its strength, color, maintenance and deficiencies, derive from chyle; energy, health, complexion and good memory spring from congenial diet and environment (sātmya)."

What will the child's sex be? This is a crucial question, of vital importance in the individual's fate under the Hindu paternal order, which entails more suffering than happiness for women. The incidence of the birth of a girl-child, in fact, is

viewed in non-medical tradition as an effect of bad karman. In terms of pre-scientific physiology the following solution is offered: "If (in the mixture of semen and menstrual blood) the seed prevails, a boy will be the issue; if the menstrual blood prevails, it will be a girl; from the equal proportion of both springs the hermaphrodite."

Concerning the growth of the foetus, Suśruta refers to a number of conflicting theories, of all of which he disapproves. The fact, however, that he feels himself bound to mention them, as forming part of past and current tradition, gives one the impression that, though they could be contradicted with a certain authority, they could hardly be eliminated for good and all; no demonstrative test was available to prove their fallacy:

Śaunaka teaches: "when the foetus springs into existence, first the head comes into being, because the head is the root from which the faculties of the senses (indriya) spring forth,"

Kṛtavīrya teaches: "—the heart, because it is the abode of the all-comprehensive awareness (buddhi) and of the mind (manas)."

The school of Parāśara teaches: "—the navel, for out of the navel grows the body of animate beings."

Mārkaṇḍeya teaches: "—the arms and the legs,

because they are the root of the movements of the foetus."

Subhūti Gautama teaches: "—the middle of the body, because the unfolding of all limbs is tied to it."

Finally, the authority of the god-physician, whose teachings supposedly were handed down by Suśruta, is brought into play to settle the question:

Dhanvantari teaches: " this, however, is not true. All main and minor parts of the body develop simultaneously, but, owing to the extreme minuteness of the foetus, (at first) they are practically indiscernible, just as are the sprouts of bamboo and the fruits of mango (in their first growth)."

The growth of the foetus and the reactions of the mother to its existence, Suśruta describes as follows:

In the first month the germ grows into a drop like a resinous exudation (kalala); in the second month it becomes a solid mass, an association of the five elements, matured by cool and hot winds. If it is a lump (piṇḍa), it will be a boy; if it is a ball (peśī), it will be a girl; if it is a swelling (arbuda), it will be a hermaphrodite. In the third month the five protrusions of arms, legs and head emerge; and the articulation of the major and minor limbs begins to be visible.

In the fourth month the articulation of all the limbs becomes more distinct. The heart of the foetus becomes manifest; hence its (subtle) thought-substance (cetanā-dhātu) becomes distinct, because it abides in the heart. Hence the embryo in the fourth month experiences desires for sense-objects. The pregnant mother has " two hearts " and is called " dau-hṛdinī," that is, " provided with two hearts," and " provided with the peculiar longings and strange appetites of a pregnant woman."

If the particular longings of the expectant mother are disregarded, she will bring forth a hump-backed child, a cripple with a withered or crooked arm, a lame child, an idiot, a dwarfish son, or a son with deformed eyes, or no eyes. Therefore, the doctor should order that she be given whatever she wants. For when she gets her wishes peculiar to pregnancy, she will bring forth a boy, full of manly strength and endowed with long lasting life-force. Whatever objects of sense the pregnant woman desires to enjoy, the doctor should procure for her, lest the embryo be thwarted.

NOTES TO INTRODUCTION

[1] J. F. Royle, *An Essay on the Antiquity of Hindoo Medicine*, London, 1837. German translation: J. F. Royle, *Ein Versuch über das Altertum der indischen Medizin nebst einer Einleitungsvorlesung zu einem Kursus der Materia Medica und Therapie im King's College*. Aus dem Englischen übertragen von J. Waller. Mit einer Einleitung und mit Zusätzen von C. F. Heusinger. Cassel, 1839.

[2] Reprinted in H. H. Wilson's *Works*, Vol. III, pp. 269-276 and 380-393, London, 1864.

[3] *Atharva-Veda Saṁhitā,* translated with a critical and exegetical commentary by William Dwight Whitney; revised and brought nearer to completion and edited by Charles Rockwell Lanman, Harvard Oriental Series, Vols. 7 and 8, Cambridge, Mass., 1905.

[4] *Charaka-Saṁhitā*, translated by Avinash Chandra Kaviratna and Pareshnath Sarma Kavibhushana, Calcutta, 1890-1911; *The Suśruta Saṁhitā or the Hindu System of Medicine according to Suśruta,* translated from the original Sanskrit by A. F. R. Hoernle, Bibliotheca Indica, New Series, No. 911, Calcutta, 1897 (unfinished); *Suśruta*, transl. by Kaviraj Kunja Lal Bhishagratna, Calcutta, 1907-1918; *Vāgbhaṭa's Aṣṭāngahṛdayasaṁhitā*, ein altindisches Lehrbuch der Heilkunde, aus dem Sanskrit ins Deutsche übertragen, mit Einleitung, Anmerkungen und Indices von Luise Hilgenberg und Willibald Kirfel, Leiden, 1937-1940.

[5] Juliuṣ Jolly, "Medizin," in the *Encyclopedia of Indo-Aryan Research* (Grundriss der Indo-Arischen Philologie und Altertumskunde) III, 10, Strassburg, 1901.

[6] A bibliography on Hindu medicine is contained in M. B. Emeneau's *A Union List of Printed Indic Texts and Translations in American Libraries*, American Oriental Society, New Haven, 1935, pp. 335-340.

Moritz Winternitz, *Geschichte der Indischen Literatur*, 3. Band,

Leipzig, 1920, pp. 541-554 on medical literature, is practically a descriptive catalogue of the main texts of Hindu medicine and the comments upon them by Oriental scholars.

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NOTES TO CHAPTER I

[1] Cf. Maurice Bloomfield, "The Atharva-Veda and the Gopatha-Brāmaṇa," *Encyclopedia of Indo-Aryan Research*, II, 1, B. Translations of Atharvaveda hymns by Maurice Bloomfield in *Sacred Books of the East*, Vol. 42.

[2] Cf. Whitney-Lanman translation, p. 22.

[3] Cf. Whitney-Lanman translation, p. 498; and W. Caland's translation of Kauśika-Sūtra ("Altindisches Zauberritual") in *Verhandelingen der Koninklijke Akademie van Wetenschapen te Amsterdam*, Afdeeling Letterkunde, Nieuwe Reeks, Deel III, No. 2, Amsterdam, 1900; §§ 26, 40. In addition to its use against diseases in general, this hymn is used as part of a ritual imparting

increased strength to the unborn: when the magic dish is offered to the pregnant mother, that she may bring forth a male child (puṁsavana-saṁskāra); and when a potion of liquor (surā) medicated with herbs is prepared (in the sautrāmaṇī-ritual).

[4] Walter Addison Jayne, *The Healing Gods of Ancient Civilisations*, New Haven, 1925.

[5] Cf. H. Kern, "Manual of Indian Buddhism," *Encyclopedia of Indo-Aryan Research*, Strassburg, 1896, pp. 46-47 with reference to Yogasūtra II, 13 commentary.

[6] Brahma-vaivarta-purāṇa, Kṛṣṇa-janma-khanda, ch. 51. For the general background, cf. Arturo Castiglioni, "The Serpent in Medicine," *Ciba Symposia*, III, 12, March 1942.

[7] *The Bhela Saṁhita, Sanskrit Text*, publ. by the University of Calcutta, 1921.

[8] "The Bower Manuscript, Facsimile leaves, Nāgarī Transcript, Romanised Transliteration and English Translation with Notes," ed. by A. F. R. Hoernle, part 1, 2. *Archaeological Survey of India*, New Imperial Series, Vol. 22, Calcutta, 1893-1912.

[9] *Aśvavaidyaka* by Jayadatta, and *Aśvacikitsita* by Nakula, ed. by Umeśacandra, Bibliotheca Indica, Calcutta, 1887; cf. M. Winternitz, *Geschichte der Indischen Literatur*, Vol. III, pp. 552-553. Extracts in H. Zimmer, *Spiel um den Elefanten*, München, 1929.

[10] "Hastyāyurveda" ed. Mahādeva Cimanājī Apte, *Ānandāśrama Sanskrit Series*, Vol. 26, 1894. Extracts from the chapters on humors, diet, diseases, types of elephants etc. printed in *Spiel um den Elefanten*. On elephant lore, cf. Franklin Edgerton, *The Elephant-Lore of the Hindus, The Elephant-Sport (Matanga-Lila) of Nilakantha*, transl. from the original Sanskrit with introduction, notes and glossary, New Haven, 1931.

[11] Cf. Book II, Pathology, and the parallel chapters in Book IV, Therapy. The same strict separation of diagnosis and therapy occurs again in Book VI, 1-7 and 8-17, in the section on eye-diseases; and in VI, 27, the diagnosis of children's diseases, followed by the corresponding treatments, 28-36.

[12] "nidāne Mādhavaḥ śreṣṭhaḥ/sūtrasthāne tu Vāgbhaṭaḥ/śarīre Suśrutaḥ proktaś/Carakas tu cikitsake//"

[13] Ānandarāyamakhī, of the Bharadvāja gotra, was a son of Nṛsiṁharāyamakhī or Nṛsiṁharāyadhvarī and a nephew of Tryambakarāyayajvadīkṣita or Tryambakarāyamakhī. "Jīvānandam" and "Vidyāpariṇayanam" published in the Kāvyamālā editions (Nr. 27 and 39). Translations of "Jīvānandam": *Il Jivananda (la Felicità dell'Anima) di Anandarayamakhin*, by Vallauri, editor G. Caraba, Lanciano; and *Das Glück des Lebens, medizinisches Drama von Ānandarāyamakhī*, übersetzt von Adolf Weckerling, Greifswald, 1937.

[14] The relation between husband and wife is likewise the model for the bond between the Brahmin, acting as a house-priest and spiritual adviser, and the king or chief, who submits himself to the spiritual guidance and magic protection of the priest. It constitutes the foundation of the cooperation between spiritual authority and temporal power in Indo-Aryan civilization. Cf. Ananda K. Coomaraswamy, *Spiritual Authority and Temporal Power in the Indian Theory of Government*, New Haven, 1942.

[15] Su. I, 7. H. H. Sir Bhagavant Sinh Jee, *A Short History of Aryan Medical Science*, New York, 1896, contains on plates VII-X illustrations of a hundred and twenty-five implements of Indian surgery. Cf. Girindranath Mukhopadhyāya Bhisagācārya, *The Surgical Instruments of the Hindus*, 2 vols., Calcutta University, 1909.

[16] Cf. Charles Greene Cumston, *An Introduction to the History of Medicine*, New York, 1926; ch. III, Hindu Medicine.

[17] Cf. D. V. S. Reddy, "Medical Relief in Medieval South India, Centres of Medical Aid and Types of Medical Institutions," in *Bulletin of the History of Medicine*, 1941, 9, pp. 385-400.

[18] King Arjuna Kārtavīrya Haihaya meets death at the hand of Rāma-with-the-axe (Paraśurāma), the warlike Brahmin hero of the epic cycle, who exterminated the kings and chieftains of the warrior-caste to avenge his father. The dreams of the king, por-

tending his imminent death, are recounted in Brahma-vaivarta-purāṇa, Gaṇeśa-khanda, ch. 34.

A similar series of dream-symbols occurs in another chapter of the same Purāṇa (Kṛṣṇa-janma-khanda 63). It is told by Kaṁsa, the opponent and victim of the hero-savior, Kṛṣṇa. This bloodthirsty tyrant, a demon incarnate among men, foresees his doom at the hand of the avatāra of Viṣṇu.

The meaning of dream-symbols is discussed in detail by Jaggaddeva in *Svapnacintāmani*, ed. and transl. by Julius von Negelein: *Der Traumschlüssel des Jagaddeva*, ein Beitrag zur indischen Mantik, Gießen, 1912.

NOTES TO CHAPTER II

[1] Cf. Helmuth von Glasenapp, "Tantrismus und Śaktismus," *Ostasiatische Zeitschrift*, Neue Folge, Heft 3/4, p. 120. *Works on Tantra and Tantrik Texts*, ed. by Arthur Avalon (Sir John Woodroffe), London, Calcutta, Madras, 1913-29.

[2] Aitareya Upaniṣad, I; Aitareya Āranyaka, II, 4. Cf. *The Thirteen Principal Upanishads*, translated from the Sanskrit . . . by Robert Ernest Hume, New York, 1934, p. 294.

[3] Cf. Whitney-Lanman's translation, p. 647.

[4] For specimens of these macro-microcosmic equations, cf. R. E. Hume's translation of the *Upaniṣads*, General Index, under "Correlations or Correspondences of things cosmic and personal"; for the philosophic background: Hermann Oldenberg, *Vorwissenschaftliche Wissenschaft, die Weltanschauung der Brāhmaṇa-Texte*, Göttingen, 1919.

[5] Cf. Whitney-Lanman's translation, p. 632.

[6] The five principal forms of the Fire-god (Agni) to which the text refers are: 1. the celestial fire of the sun; 2. the fire inhabiting the cosmic water and flashing forth from the womb of the clouds

in the form of lightning; 3. the fire inhabiting the vegetable realm (trees) which is generated from wood when fire is stirred by means of a wooden board and stick; 4. the animal fire inhabiting warm-blooded beings, especially men, which bestows bodily warmth, complexion and color; 5. the domestic fire on the house-altar of every Aryan homestead, tended by the father of the family as the ever-present tutelary deity of the household; from this domestic fire are taken the two forms of sacrificial fire for the oblations to the gods, and the offerings to the forces of the realm of death and destruction.

[7] Cf. Margaret Sinclair Stevenson, "Without the Pale, The Life Story of an Outcast," *The Religious Life of India*, Oxford University Press, New York, 1930, p. 20.

[8] Cf. *Yoga: Personal Hygiene* by Shrī Yogendra, The Yoga Institute, Bombay, 1940. The volume forms part of a series of publications of the Bombay Yoga Institute. In 1931 the Institute started with a periodical, "Yoga"; this after three years was supplemented by a sequence of monographs on the various aspects and aims of yoga practice relating to the criticism and experimental research of Western medicine and psychology. The author, well versed in Western medicine, is a pupil of the late Hindu saint and yoga teacher, Yogīśvara Paramahaṁsa Mādhvadāsjī, who died in 1921. Mādhvadāsjī entrusted the author with the task of initiating a "practical Yoga Renaissance." For this purpose Shrī Yogendra founded the Bombay Yoga Institute, toured the United States, and collaborated with various Western scholars. The two first chapters of his book deal with the "Ideals of Yoga Hygiene" and the "Possibilities of Eternal Youth," the other chapters specialize on the Yoga treatment of various parts and organs of the body; ch. 3 deals with the "care of the teeth, mouth, tongue, ear and sinus"; ch. 4, care of the nose; ch. 5, of the eye; ch. 6 and 7, of the digestive organs; ch. 8, of the respiratory apparatus, ch. 9, of the sexual organs; ch. 10, of the brain and nervous system; ch. 11, of the skin. The last chapter deals with hygiene in general.

[9] Cf. George Weston Briggs, *Gorakhnāth and the Kānphaṭa*

Yogis, Oxford University Press, New York, 1938, p. 291; *Śiva-saṁhitā*, ed and transl. by Rai Bahadur Śrīśa Chandra Vīdyārṇava, The Pānini Office, Allahabad, 1923, ch. III, 3-8; *Gheranda-Saṁhitā*, ed. and transl. by Shris Chandra Vasu, Bombay, 1895, ch. V, pp. 59-64.

[10] Cf. *Vedāntasāra* by Sadānanda, ed. R. Garbe in O. Böhtlingk's *Sanskrit-Chresthomathie*, 3. Auflage, Leipzig, 1909, No. 93-104; *Vedāntasāra of Sadānanda* with Introduction, Text, English Translation and Comments by Swami Nikhilananda, Almora, 1931, No. 77-85.

[11] With regard to the third among the subsidiary winds, an obvious deterioration of the original conception has taken place in course of time; "ksut," "sneezing" (onomatopoeic) became understood as "ksudh," "hunger," because of the identical spelling of both in writing and elocution under the form of "ksut," whenever the final "dh" of "ksudh" became a "t," according to the rules of euphonic junctions. The replacement of the less familiar "ksut" in favor of the more frequent "ksudh" (hunger) occurs in *Gherandasaṁhitā*, V, 68, where Krkara is said to "produce hunger and thirst" (ksuttṛṣam); while in V, 67 sneezing, "making 'ksut'" is said to be its function. The same erroneous interpretation is found in *Vedāntasāra*: "krkarah ksudhākarah." *Gherandasaṁhitā*, V, 68 states that from the fifth wind, Dhanaṁjaya, "sound is produced"; although its main function is described as follows: "it does not leave the body for a moment," still it is considered the motor-force from which speech and singing originate.

[12] Corpus Hippocraticum, Περὶ ἀέρων, ὑδάτων, τόπων, 14; and Περὶ ἱερῆς νούσου, 2.

[13] *Bṛhad-Āraṇyaka-Upaniṣad*, VI, 4, 9. "When he wishes that she should desire and enjoy him, he should insert the member in her, join mouth with mouth, caress her organ by gently rubbing it, and should mutter: 'thou takest thy origin from every limb; thou art generate from the heart; thou art the condensation of the limbs; do thou drive mad this here (the woman whom he is

kissing) and that here (the organ he is caressing), like (a doe) wounded by a poisoned arrow! ' " The two classic translators of the Upaniṣads, Paul Deussen ("Sechzig Upanishads des Veda," 3. Auflage, Leipzig 1921, p. 515) and R. E. Hume (*The Thirteen Principal Upanishads*, p. 169) have somehow missed the ritualistic detail of this kāma-sūtra practice; Deussen, in translating "dem Wild gleich, das der Giftpfeil traf, mach rasend diese da auf mich," and Hume, in rendering, "distract this woman here in me, as if by poisoned arrow pierced." The text, however, has ". . . māday-emām amūm mayi," that is, "fac intoxicatam hanc (feminam), illam (vaginam) in me."

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